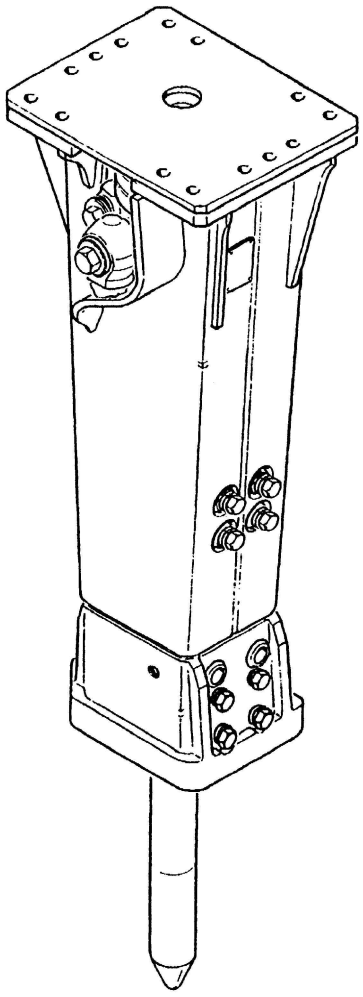
Model V45 Manual

Parts, Safety, Operation & Maintenance

Form No. M1017-POMS

Revision 6



November 2001

Quick Reference Parts

Item	Part Number	Ref #	Qty.	DESCRIPTION	
630	86383809	82747	1	Strike piston	Piston de frappe
640	86382454	82325	1	Cylinder	Cylindre
700	86422714	93598	1	Spacer	Entretoise
790	86588605	N/A	1	Front guide	Guide avant
800	86474897	94464	1	Upper chuck bushing	Douille supérieure
880	86509932	96567	1	Lower chuck bushing	Douille inférieure
930	86576303	97052	2	Tool retaining pin	Axe de retenue
830	86422763	93548	4	Lock	Verrou
840	86362837	76975	2	Spring	Ressort
850	86378353	81137	2	Spring guide	Guide ressort
870	86385937	83172	2	Snap ring	Jonc
				Fittings for auto greaser	
490	86231644	7294	1	Knee piece axle	Axe de genouillère
500	86238466	12817	2	Equal lip seal	Joint à lèvres égales
510	86352481	73008	1	Tight seal	Joint d'étanchéité
520	86355500	74256	1	Knee piece 3/8" NPTF	Genouillère 3/8" N
950	86594785	N/A	4	Side rod bolt	Vis d'assemblage
960	86477163	94613	4	Side rod nut	Ecrou
				Upper suspension	
1071	86510146	96584	1	Support disk	Disque d'appui
1072	86510112	96582	8	Screw, UNF 1 1/8”	Vis CHc UNF 1 1/8”
1080	86385572	83109	1	Shock absorber	Amorlisseur
				Upper soft	
1070A	86510286	96597	1	Support disk	Disque d'appui
1072A	86510310	96601	8	Screw, UNF 1 1/8”	Vis CHc UNF 1 1/8”
1080A	86385606	83112	1	Shock absorber	Amortisseur
				Lower suspension	

Standard/Soundproof Cradle

110/140	86582152	N/A	2	Absorber	Amortisseur
120/150	86592490	N/A	2	Bar	Barrette
20	86576444	97064	16	Wear plate bolts	
30	86307493	51743	32	Washer "two mounted at a time"	Rondelle "montees par deux"
40	86486909	95041	2	Guiding slipper	Patin de guidage
50	86506961	96432	2	Guiding slipper	Patin de guidage
60/90	86473048	94346	4	Plastic plug	Bouchon plastique
70/100	86473030	94345	4	Plastic plug	Bouchon plastique
80/110	86576436	97063	14	Screw UNF 1”	Vis UNF 1 "
90/120	86307493	51743	56	Washer "two mounted at a time"	Rondelle "montees par deux"
100/130	86510005	96574	14	Fixing cap nut	Ecrou H

1150	86492246	95295	1	Moil point	Broche pic
	86492238	95294	1	Chisel	Broche burin
	86481066	94712	1	Seal kit	Pochette rechange
	86392537	84672	1	H.P. Diaphragm	H.P. Membrane d'accumulateur
	86265048	26428	1	Inflating screw	Vis de gonflage
	86241403	14826	1	Inflating ring	Bague BS

Quick Reference Torques

Part Number	Ref #	DESCRIPTION	
Assembly Side Rods			
86594785	N/A	Side rod bolt	Pull the nuts to 290 ft-lbs and release.
86477163	94613	Nut	Pull the nuts to 150 ft-lbs in a crisscross pattern. Align the notches. Next, pull five more flats: Two flats, two flats and one flat in a crisscross pattern. Go 1/4” past notch and release to remove pretwist in rod.
Bracket Cap Bolts			
86576436	97063	Fixing cap bolts	480 ft-lbs.
Wear plate Bolts			
86576444	97064	Wear plate bolts	650 ft-lbs.
Accumulator			
86392487	84667	H.P. accumulator	725 psi charge pressure
86381340	81958	Accumulator bolts	370 ft-lbs.
86265048	26428	Inflation screw	16 ft-lbs.
86413457	90181	Accumulator fixing bolts	660 ft-lbs.

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FOREWORD

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This manual contains instructions and technical data to cover all routine operations and scheduled maintenance tasks by operation and maintenance staff. Major overhauls are outside the scope of this manual and should be referred to an authorized TRAMAC service department.

The design specification of this machine has been certified as complying with E.C. directives. Any modification to any part is absolutely prohibited and will result in the CE certification and marking being rendered invalid.

TRAMAC reserves the right to make changes and improvements to products without notice and without incurring any obligation to make such changes or add such improvements to products sold previously.

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Ce manuel contient des instructions et des données qui couvrent toutes les opérations et les tdches de maintenance régulière à effectuer par le personnel d'exploitation et de maintenance. Les révisions générales sortent du cadre de ce manuel et doivent être renvoyées à un service d'entretien agréé TRAMAC.

Les spécifications de cet appareil ont été homologuées comme étant conformes aux directives de la CEE. Toute modification dune pièce quelconque est absolument interdite et auralt pour conséquence l'invalidation de I'homologation CE.

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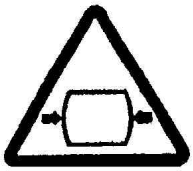
WARNING!

ATTENTION!



WARNING! - Pressurized component or system.

ATTENTION! - Composant ou systéme sous pression

WARNING! - Pressurized vessel (accumulator).

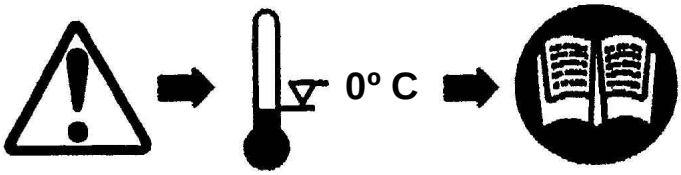
ATTENTION! - Récipient sous pression (accumulateur)

Lifting point.

Point de levage.

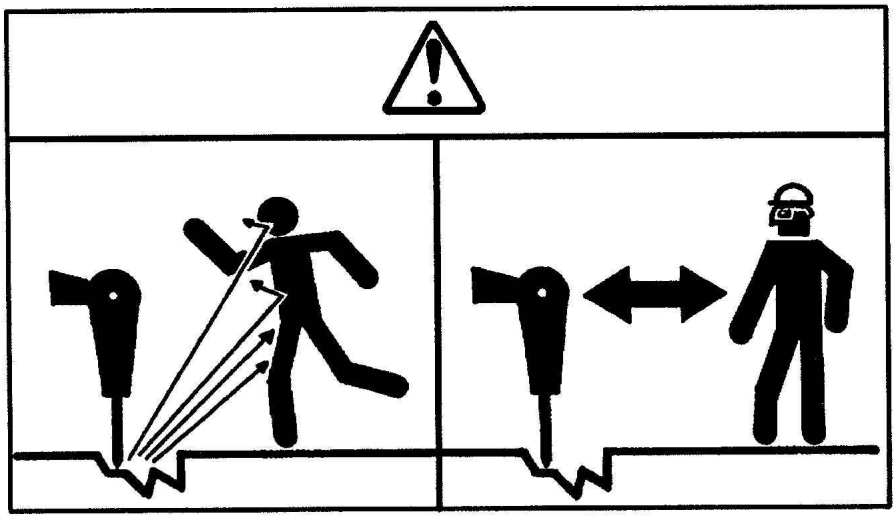
WARNING! - Consult the operation and maintenance manual before beginning any maintenance.

ATTENTION! - Consulter le manuel d'utilisation et d'entretien avant d'entreprendre toute interventions.



WARNING! - For operating temperature below 0º C, consult the operation and maintenance manual.

ATTENTION! - Pour l'utilisation en dessous de 0º C, consulter le manuel d'utilisation et d'entretien.



WARNING!
- Risk of flying chips of rock
- Keep clear, wear a helmet and safety glasses.

ATTENTION!
- Risques de projections
- Rester à distance, porter un casque et des lunettes de sécurité.

SAFETY

WARNINGS

"Warnings" call attention to instructions which must be followed precisely to avoid injury or death.

CAUTION

"Caution" calls attention to instructions which must be followed precisely to avoid damaging the product, process or its surroundings.

NOTES

Notes are used for supplementary information.

SAFETY PRECAUTIONS

All mechanical equipment can be dangerous when used without care or if it is in bad condition.

Ensure that the operator reads and understands the decals and consults the manuals before maintenance or operation.

Ensure that the operation and maintenance manuals remain at operator's disposal.

Ensure that maintenance personnel are adequately competent and have read the maintenance manuals.

Safety is not only a matter of warnings. Every time the operator is working with the breaker, the operator must be able to foresee any risks and know how to avoid them.

Never undertake a new job or maintenance operation without being sure you and other people in the environment will be safe.

SECURITE

ATTENTION

L'indication "ATTENTION" précise que les instructions doivent être suivies absolument pour éviter tout accident grave.

PRECAUTIONS

L'indication "PRECAUTION" précise que les instructions doivent être suivies absolument pour éviter d'endommager le produit, la procédure ou son environnement.

NOTES

L'indication "NOTE" donne des compléments d'information.

PRECAUTION POUR LA SECURITE

Tous les appareils mécaniques peuvent être dangereux s'ils sont utilisés sans précautions ou s'ils sont en mauvais état d'entretien.

Vérifier que l'opérateur lise et comprenne les étiquettes, consulte les manuels avant toute opération et maintenance.

Assurer vous que le manuel d'exploitation et de maintenance reste à la disposition de l'utilisateur.

Assurer vous que les personnels sont formés dune manière adéquate, qu'ils sont compétents et qu'ils ont lu les manuels de maintenance.

La sécurité n'étant pas uniquement une affaire d'instructions, chaque fois que l'opérateur travaille avec un brise roche, il doit penser aux risques qui peuvent survenir en cours de travail et prévoir les moyens de les éviter.

Ne jamals commencer un travail ou une opération de maintenance sans être certain que vous et les personnes alentours resteront en sécurité.

GENERAL INFORMATION

A rock breaker is an accessory for mini-excavators, backhoes or other excavators according to the model.

The operator must have the necessary knowledge and must be allowed to operate such carriers.

The operator must know the safety instructions concerning the carrier and comply with them.

In addition to the usual safety equipment, such as helmet and safety shoes, the operator will, if need be, have available:
- Safety glasses, industrial gloves, dust mask and ear protector.

Ample, loose clothing, watches or bracelets can in some circumstances be dangerous.

The operator will not absorb any alcoholic drinks or medicines liable to generate sleepiness.

It is imperative to be informed and comply with all local laws and regulations concerning the breakers and their use.

MOUNTING ON CARRIER

Each model of breaker is suited to a specific carrier.

The operator must be informed of the technical instructions given by the manufacturer, such as Carrier minimum weight, working pressure, flow rate, hoses, dimensions and connection to carrier's hydraulic circuit.

Failure to follow these instructions could result in permanent damage to the hydraulic hammer!

INFORMATIONS GENERALES

Un brise roche est un accessoire adaptable aux mini-pelles, tracto-pelles ou pelles hydrauliques selon le modéle.

L'opérateur doit avoir acquis les connaissances nécessaires et doit être autorisé à conduire de tels engins porteurs,

Il doit s'informer des consignes de sécurité propres à l'engin porteur et les respecter.

En plus de l'équipement de sécurité habituel (casque, chaussures de sécurité), l'opérateur devra, si la nature des travaux l'impose, se munir d'équipements tels que:
- Lunettes et gants de protection, masque anti - poussières, casque anti - bruit, etc.

Les vêtements amples, flottants, les bracelets montre et autres sont à proscrire car dangereux en certaines circonstances.

L'opérateur ne doit pas absorber de boisson alcoolisée ni de médicament provoquant la somnolence pendant le travail.

Il est par allieurs impératif de prendre connaissance et de respecter les règlements locaux concernant les brise roches et leur utilisation sur chantier.

MONTAGE SUR PORTEUR

Chaque modèle de brise roche est adapté à un type d'engin porteur.

L'opérateur dolt prendre connaissance des prescriptions d'utilisation fournies par le constructeur du porteur, telles que:
- Poids minimum du porteur, pression d'utilisation, débit, dimensionnement des flexibles et raccordement au circuit hydraulique du porteur.

Le non respect de cos prescriptions peut endommager gravement le brise roche!

When someone helps to install the breaker, make sure any hand signals will be well understood.

Lorsque un aide participe au montage du brise roche, s'assurer que les instructions données par gestes soient blen comprises.

Unexpected boom movements, when installing the breaker, could result in hand injury:
- Be sure the carrier is immobile and stable.
- Keep your hands clear when moving the boom end between fixing plates.
- Do not use your fingers to "feel" pin alignment.

Un mouvement inattendu du bras de pelle lors du montage du marteau, peut être la cause d'accident aux mains:
- S'assurer que le porteur est immobile et stable.
- Ne pas laisser les mains à proximité lors de la descente de l'extrémité du bras entre les plaques de fixation.
- Ne pas véritier l'alignement des passages d'axes avec les doigts.

When connecting the breaker hoses to the carrier circuit, be sure the circuit is not under pressure (check that the hydraulic tank is not pressurized) or at high temperature.

Lors du raccordement du brise roche au circuit hydraulique du porteur, s'assurer que le circuit nest pas sous pression (penser au réservoir pressurisé) ou à température élevée.

The carrier engine must be stopped.

Le moteur de l'engin porteur dolt être arrêté.

Check that HP and LP return hoses are well connected.

Veillez à ce que les flexibles d'alimentation et de retour soient correctement branchés.

Take all necessary steps to prevent oil leakages when connecting the breaker.

Prendre toutes les mesures nécessaires pour éviter au maximum les pertes d'huiles lors du branchement du brise roche.

HYDRAULIC FLUIDS

FLUIDE HYDRAULIQUE

Hydraulic fluids and lubricants can be dangerous to health if not used properly.

Les huiles hydrauliques et lubrifiants peuvent être dangereux pour la santé s'ils sont utilisés incorrectement.

Avoid ingestion, skin contact and inhalation.

Ne pas avaler, mettre en contact avec la peau, ni Inhaler les émanations.

Safety data sheets for oil and lubricants should be obtained from the lubricant supplier.

Les fiches de paramètres de sécurité pour les huiles et lubriflants doivent être obtenues auprès du fournisseur.

Should hydraulic oil come into contact with eyes, rinse them abundantly and consult a doctor.

Si de l'huile hydraulique entre en contact avec les yeux, rincer les abondamment et consulter un médecin.

Should hydraulic oil come into contact with skin, wash it off immediately.

Nettoyer immédiatement la peau si de l'huile entre en contact avec celle-ci.

Fine jets of hydraulic fluids at high pressure can penetrate the skin causing serious injury.
- Be sure the circuit is not under pressure prior to any intervention.
- Do not use your hand to check for hydraulic fluid leakages.
- If hydraulic fluid penetrates the skin, get medical help immediately.

Les jets d'huile hydraulique sous pression peuvent pénétrer la peau et provoquer de graves blessures.
- Ne jamais intervener sur un circuit hydraulique sous pression.
- Ne jamais utiliser la main pour chercher une fuite.
- Si de l'hulle hydraulique pénètre sous la peau, consulter immédiatement un médecin.

HYDRAULIC ACCUMULATOR

ACCUMULATEUR HYDRAULIQUE

Rock breakers incorporate one or two hydraulic accumulators containing nitrogen under pressure.

Les brises roches comprennent 1 ou 2 accumulateurs qui contiennent de l'azote sous pression.

Never attempt to open the accumulator covers.

Ne jamais démonter les couvercies d'accumulateurs.

If an accumulator needs to be repaired, contact your TRAMAC distributor.

Si une intervention est nécessaire sur un accumulateur, consulter votre distributeur TRAMAC le plus proche.

OPERATION

UTILISATION

If the carrier is in a work area where there are risks of falling objects or rocks, the cabin must be equipped with an approved FOPS protection.

S'il y a un risque de chutes d'objets ou de blocs dans la zone de travail, la cabine de l'engin porteur doit être équipée d'un système de protection homologué "FOPS'.

Prior to starting work, the operator will make sure there are no buried electricity, gas or water pipes or lines.

Avant le démarrage de travaux l'opérateur doir s'informer, de tous passages de conduites d'é1ectricité, gaz, eau ou autres présentant un danger, dans sa zone d'intervention.

The operator must take every step to illuminate or light up his working area and permanently take care of ground stability.

L'opérateur doit prendre si nécessaire toutes précautions, pour signaler ou éclairer sa zone de travail et s'assurer en permanence de la stabilité du terrain sur lequel l'engin porteur doit évoluer.

The rock breaker will be used on a clear working area oriented in such a way, that inevitable rock chips produced by the contact of the tool with the ground are not dangerous for the operator or any bystanders.

Le brise roche doit être utilisé sur une aire de travail dégagée avec une orientation telle que les inévitables éclats de roche, produits par le contact de l'outil avec le terrain, soient sans danger pour le voisinage et l'opérateur.

Stand clear from a breaker in operation.

Ne pas rester à proximité du brise roche en fonctionnoment.

It is highly recommended to have a protection grid in front of the excavator and in all places where special care and safety are necessary.

Il est vivement recommandé de prévoir une grille de protection devant le poste de conduite de l'engin porteur et tous les endrolts indispensables à la sécurité de l'environnement immédiat du chantier.

Depending on the job done with the breaker, a large quantity of dust could be produced.
- Avoid inhalation.
Use water spraying to drop dust.

Pendant l'utilisation du brise roche, principalement en démolition, une quantité importante de poussibres peut être produite.
- Ne pas inhaler.
Utillser de l'eau pour abattre les poussières.

Do not use the breaker for any other application than what it is intended for: Splitting blocks, digging trenches, demolition and excavations.

Ne pas se servir du brise roche hydraulique autrement que pour les applications prévues casse de blocs, travaux de tranchées, fouilles, démolitions.

Never use the breaker as a lever.

Ne pas utiliser le marteau comme levier.

Never use the breaker to lift loads.

Ne pas utiliser le marteau pour soulever des charges.

Using a rock breaker without tool retaining pins is forbidden. Do not use any other tools than those recommended by the manufacturer.

L'emploi d'un brise roche hydraulique sans claveftes de retenue d'outil est interdit. Ne pas utiliser d'autres outils que ceux prévus par le constructeur.

After a certain working time the rock breaker temperature could be high. Therefore avoid all contact with any parts until it has completely cooled down and the pressure relieved in the hydraulic circuit.

La température du brise roche après le travail peut être élevée: Eviter tout contact avec les pièces du brise roche, attendre le refroidissement complet de ces dernières et la décompression totale des circuits hydrauliques.

Should the tool be changed, wait for cooling and use proper gloves to protect your hands.

En cas de changement d' outil, attendre que la broche soit refroidie et se protéger les mains avant toute intervention.

CAUTION: The vibrations of the breaker exceed 8.2 ft/sec^2.

ATTENTION: Les vibrations sur l'apparell dépassent 2,5 m/s^2.

Do not touch the rock breaker while it is in operation. Do not leave any object on the breaker.

Ne pas toucher le brise roche en fonctionnement, ni laisser aucun objet sur le brise roche.

MAINTENANCE AND REPAIRING

All components, accessories, pipes and connectors added to the rock breaker should be:

- Of good quality, procured from a reputable manufacturer and, wherever possible, be of a type approved by TRAMAC.

- Compatible with the breaker maximal working pressure.

- Accompanied by instructions for safe installation, operation and maintenance.

When replacing HP and return hoses, use only hoses compatible with the maximum working pressure equipped with crimped end fittings.

The use of spare parts other than those included in the TRAMAC approved parts list may create hazardous conditions over which TRAMAC has no control. Therefore, TRAMAC cannot be held responsible for equipment on which non-approved spare parts are installed.

MAINTENANCE ET REPARATION

Tous les composants, accessoires, tuyauteries et connecteurs ajoutés au brise roche doivent être:

- De bonne qualité, produits par un fabricant de bonne réputation et d'un type agréé par TRAMAC toutes les fois que cela s'avère possible.

- Compatible avec la pression de travail maximale autorisée du brise roche.

- Accompagnés d'instructions pour pouvoir effectuer l'installation, l'exploitation et la maintenance sans danger.

En cas de remplacement des flexibles d'alim entation et retour n'utiliser que des flexibles compatibles avec la pression d'utilisation maximum, équipés d'embouts sertis.

L'utilisation de pièces de réparation autres que celles qui sont incluses dans la liste des pièces qui sont approuvées par TRAMAC, peut engendrer des conditions dangereuses sur lesquelles la société TRAMAC n'a aucun contrôle, par conséquent, la société TRAMAC ne peut être tenue comme responsable des équipements sur lesquels il est monté des pièces de réparation non homologuées.

Model V45 Ten Commandments

1

Don't ever modify the hydraulic installation set by the dealer.

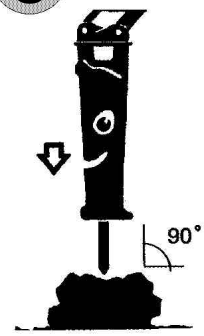
Ne jamais pousser l'accélérateur jusqu'à dépasser la limite indiquée au moment des essais de mise en route.

2

Avoid any violent movement when the breaker is operating.

Eviter toute manoeuvre brutale du bras, alors que le brise roche est en phase de frappe.

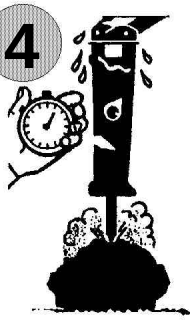
3



Applied pressure is perpendicular to the material to be broken and always follows the tool.

Imprimer au brise roche la bonne poussée, toulours perpendiculairement à la face du matériau à démolir.

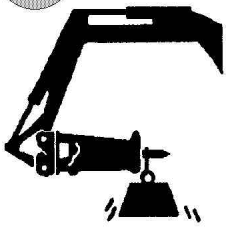
4



Do not leave the breaker in the same spot for long periods of time (Short bursts = Production = Long tool life).

Ne pas insister plus de 15 secondes sur le même point, lorsque le matériau est particuliérement dur et tenace.

5



Never use the tool as a lever or to lift heavy loads.

Ne jamais se servir de l'outil du brise roche comme s'il s'agissait d'un levier ou d'un crochet de levage.

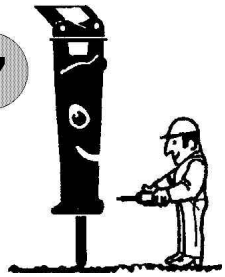
6

Avoid blank firing at all times.

Ne pas faire frapper le brise roche à vide, c'est à dire sans appul suffisant sur le matériau à démolir.

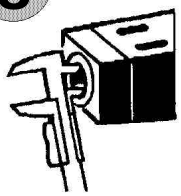
Lubricate the tool every two hours, using only a molybdenum bisulphide grease. If a lubricating station is available, make sure it is full and check the proper operation of the pump before each shift.

7



Lubrifier l'outil toutes les deux heures de travail environ, en utilisant une graisse au bisulfure de molybdéne. S'il y a une centrale de graissage, veiller à son remplissage en début de poste de travail et vérifier son bon fonctionnement.

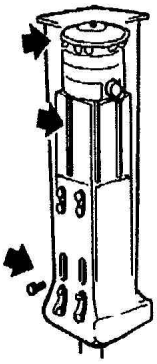
8



Replace the tool bushing when the wear limits are reached.

Remplacer la douille d'usure lorsque celle-ci atteint la limite d'usure.

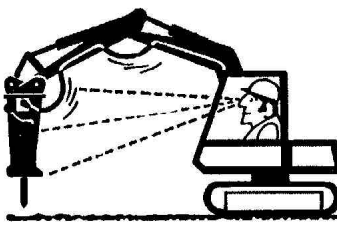
9



Continuously check for loose nuts, bolts and fittings and immediately replace loose or broken items.

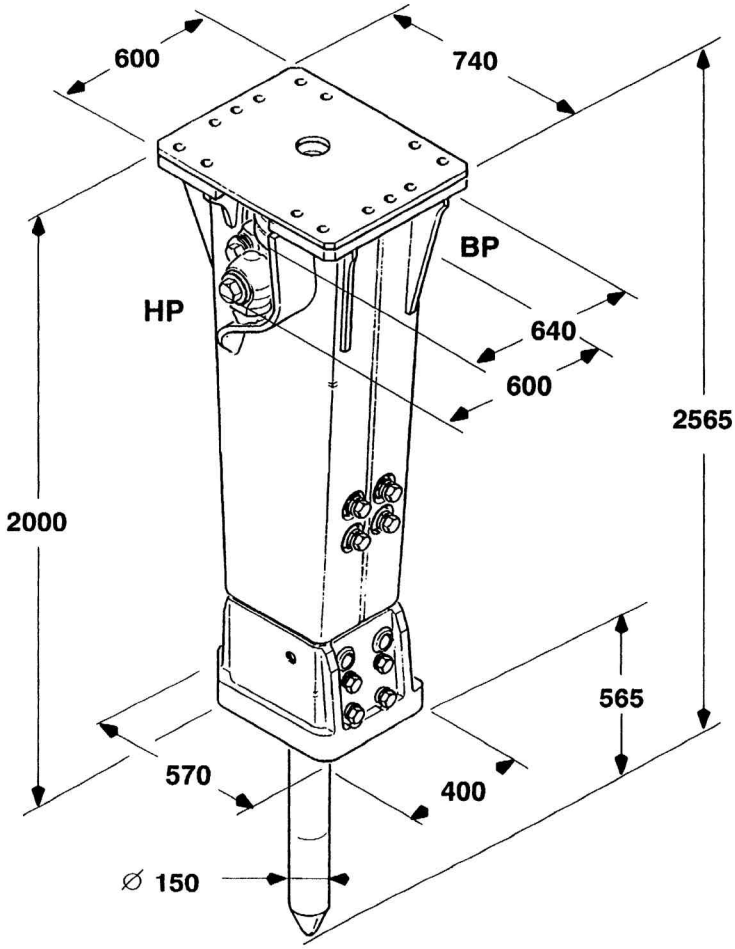
Arrêter immédiatement le brise roche lorsqu'un tirant d'assemblage est desserré ou cassé.

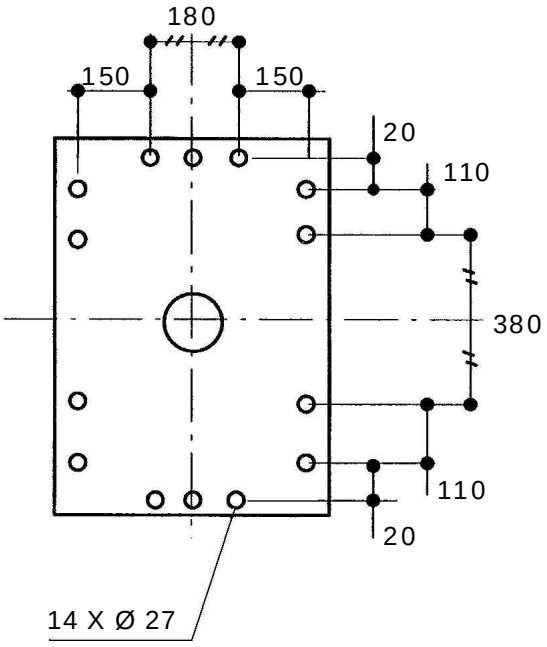
10



Stop the breaker immediately when the blows per minute decrease below normal operating parameters or the hoses vibrate excessively.

Arrêter immédiatement le brise roche lorsque les flexibles vibrent de facon excessive.





Operating Weight	5767 Lbs
Poids Total	2616 kg

Dimensions in Millimeters
Les Cotes Sont Données en Millimétres

TECHNICAL SPECIFICATIONS	CARACTERISTIQUES TECHNIQUES	TRAMAC	
Carrier recommended weight	Adaptation sur pelles de poids consei-Ilé:	27.5 to 41 Tons	
Recommended oil flow	Dèbit d'huile recommandé	48/70gpm	180/265 lpm
Minimum pressure at excavator pressure relief valve	Pression minimale de déclenchement du clapet de sécurité de la pelle	3045 psi	210 bar
Admissible counter pressure	Contre pression admissible	85 psi	6 bar
Ø of the HP hose (inside)	Ø de la tuyauterie haute pression (intérieur)	1.25 in	30 mm
Ø of the LP hose (inside)	Ø de la tuyauterie basse pression (intérieur)	1.25 in.	30 mm
Weight (without adaptation kit, or tool)	Poids (sans kit mécanique. ni outil)	5125 lbs	2325 kg
Approximate weight in working order	Poids moyen en ordre de marche	5490 lbs	2490 kg
Height with standard moil point	Hauteur avec outil pic standard	101 in.	2565 mm
Overall width	Largeur hors tout	25.2 in.	640 mm
Striking rate	Cadence de frappe	510 to 1160 bpm	
Adjusted pressure on breaker	Pression réglée sur le marteau	2400 psi	165 bar
Protection against idle running	Protection contre marche à vide	Yes	Oui
Tool diameter	Ø corps d'outil	5.91 in.	150 mm
IMPORTANT: The maximum authorized oil temperature is 176º F at breaker and 158º F in the excavator tank.	**IMPORTANT:** La température d'huile maximale autorisée esi 80º C au marteau et 70º C au réservoir de la pelle.		
Rock breakers are designed to function with mineral oil with a viscosity of 32 cst at 104º F.	Les brises- roches sont étudiés pour tonctionner avec de I'huile minérale dune viscosité de 32 cst à 40º C.		
For use with other fluids such as engine oil or synthetic fluids, consult your TRAMAC distributor.	Pour utilisation avec d'autres fluides, huiles moteur ou synthétiques, consulter votre distributeur TRAMAC.		

IMPORTANT

Prior to any mounting, the operator must check that the carrier characteristics correspond to the required specifications, mainly:
- Weight, flow and setting of relief valve(s) mounted on breaker line. (Refer to technical specifications sheet).

Prior to any mounting, a flow and pressure test of the breaker circuit is imperative.

The operator will make sure that the hydraulic installation is acceptable as given and it cannot allow the inverse feeding of the breaker by the "return line".

Note: The breaker pressure line (HP line) is located on the right side of the breaker.
Some carriers might have inverted piping (pressure line on the left side of the carrier boom).

Clearly identify HP pressure and return lines on carrier boom.

If necessary, cross over the breaker hoses to allow proper connection.

IMPORTANT

Avant tout montage, l'opérateur dolt s'assurer que le porteur devant être équipé, correspond aux spécifications données principalement:
- Poids, débit et pression de tarage du(des) clapet(s) de décharge situé(s) sur la ligne brise roche (Voir feuille spécifications techniques).

Un contrôle du débit et de la pression du circuit brise roche est Indispensable.

Il doit vérifier que l'installation hydraulique est conforme au schéma de principe fourni et qu'elle ne permet pas l'alimentation inverse du marteau par le circuit "retour".

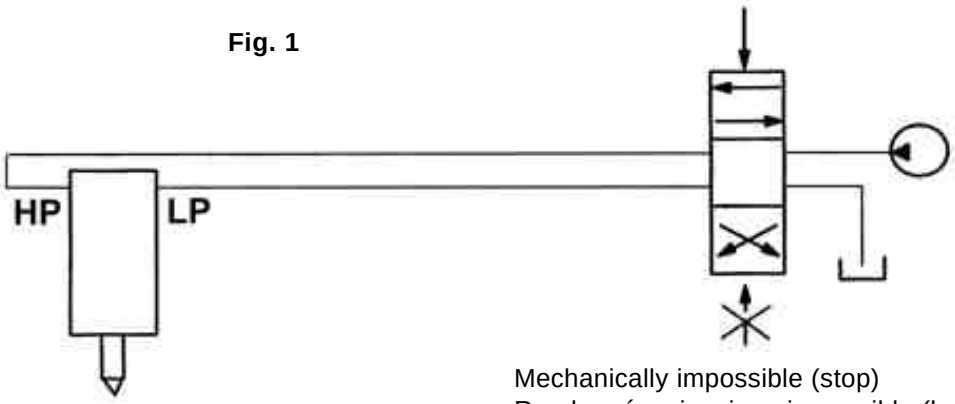
Note: La ligne d'alimentation (HP) est située coté droit du brise roche.
Certains porteurs peuvent avoir des circuits inversés (HP à gauche du bras).

Identifier clairement les circuits HP et BP du bras.

Si nécessaire, croiser les flexibles de raccordement du brise roche pour permettre un branchement correct.

Normal working
Marche normale

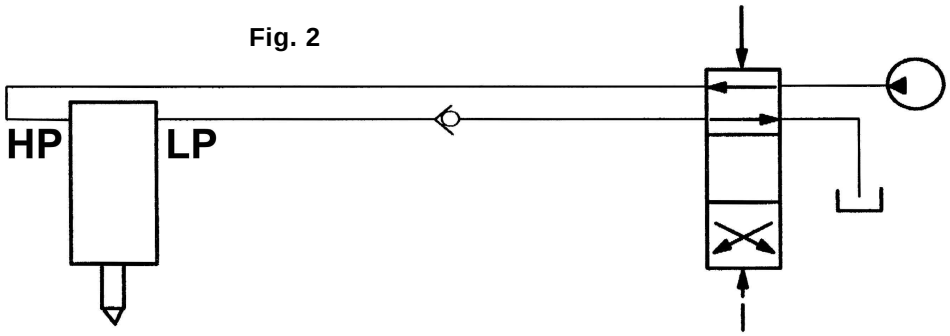
Fig. 1



Mechanically impossible (stop)
Rendu mécanicanique impossible (butée)

Normal working
Marche normale

Fig. 2



Possible
Possible

Precautions to be taken when connecting the breaker

Feeding the rock breaker by the "breaker" LP line, (which is theoretically possible when the carrier is fitted with an extra spool with 3 positions) is forbidden; otherwise the rock breaker may be damaged.

It is therefore essential to

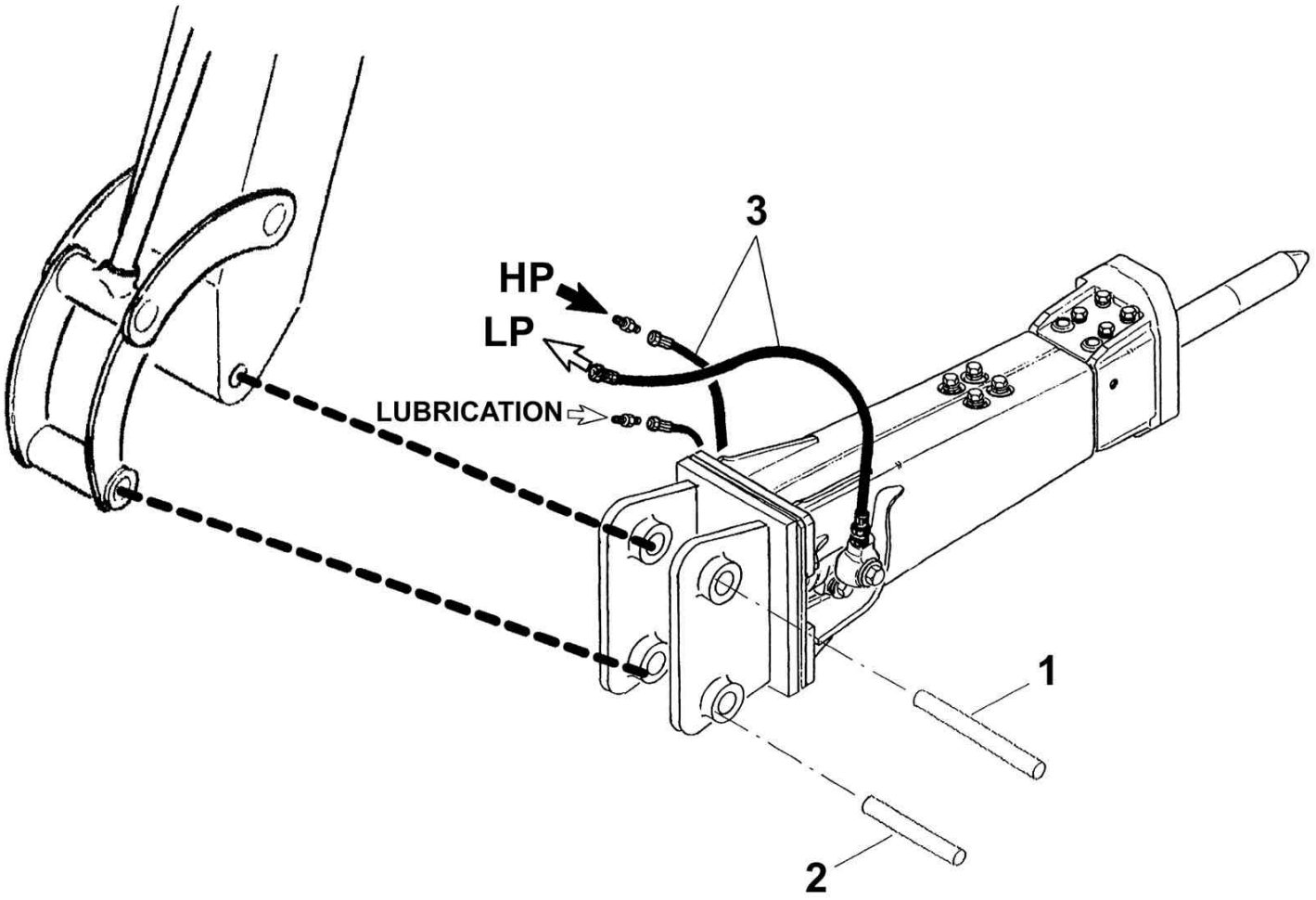
Take necessary steps to avoid activating the spool in the wrong position: From P to return circuit of rock breaker.
- For instance, adaptation of a stop under the control pedal (fig. 1) or mounting of a non-return valve on rock breaker LP line between the breaker and the spool (fig. 2).

Précautions à prendre lors du raccordement

L'alimentation du brise roche par le circuit retour "marteau" théoriquement possible lorsque le porteur est équipé d'un distributeur supplémentaire 3 positions, doit absolument être évit6é sous peine d'endommager le brise roche.

Pour cola, il faut

Prendre les mesures nécessaires pour empêcher de commander le distributeur dans la mauvaise position: Passage de P vers circuit retour du brise roche.
- Montage dune butée sous la pédale de commande (fig. 1), par example, ou bien montage d'un clapet anti-retour sur la ligne retour du brise roche, entre marteau et distributeur (fig. 2).


3
HP
LP
LUBRICATION
1
2

MOUNTING ON EXCAVATOR

Review the general safety instructions.

- Move the dipper stick end between the corresponding sides of the fixing cap.

- Insert the pin (mark. 1) and secure it.

- Move the linkage between the corresponding sides of the fixing cap.

- Insert the pin (mark. 2) and secure it.

- Swing the breaker to each end position and make sure that there is no interference with any parts of the boom end.

- Connect the breaker hoses (mark. 3) onto pipe line at the boom (mind the proper connection).

- Swing the breaker to each end position.
Hoses must not be caught, tight or rub against the carrier boom in any position.

Do not use fingers to "feel" pin alignment!

MONTAGE SUR PELLE PREEOUIPEE

Revoir les Instructions g6n6rales de socurit6, entre autres, chapitre: Montage sur porteur.

- Descendre le balancier entre les flancs.

- Engager l'axe (rep. 1) et l'immobiliser.

- Descendre la biellette entre les flancs correspondants.

- Engager l'axe (rep. 2) et l'immobiliser.

- Vérifier le débaftement du marteau et l'absence d'intertérences en positions extrêmes.

- Brancher les flexibles de raccordement (rep. 3) du marteau (Veillez au raccordement).

- Vérifier le débaftement du marteau:
Les flexibles ne doivent pas être tendus, pineés ou frofter contre le bras dans n'importe quelle position.

Ne pas vérifier l'alignement des passages d'axes avec les doigts!

Fig. A

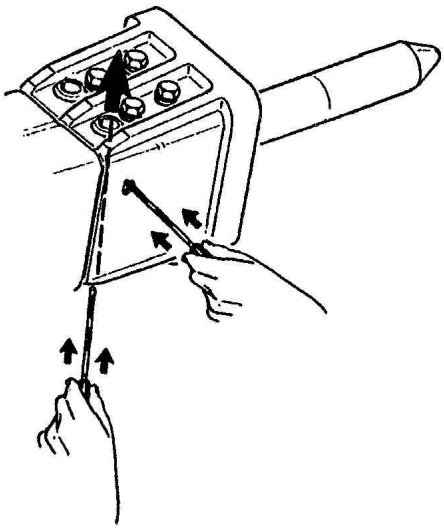


Fig. B

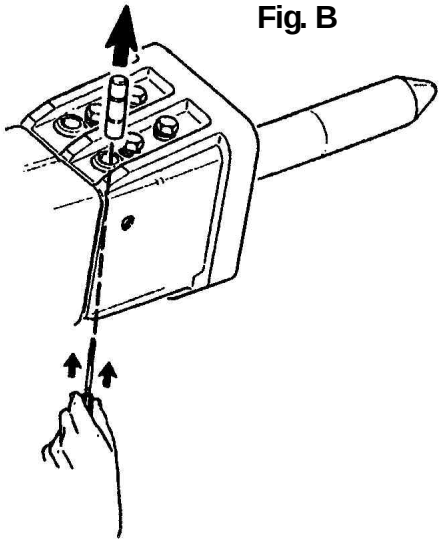


Fig. C

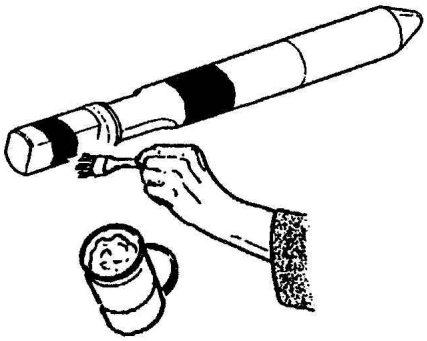


Fig. D

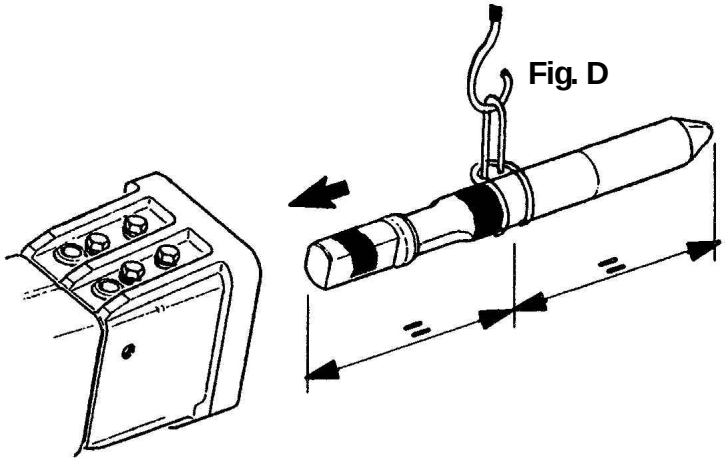


Fig. E

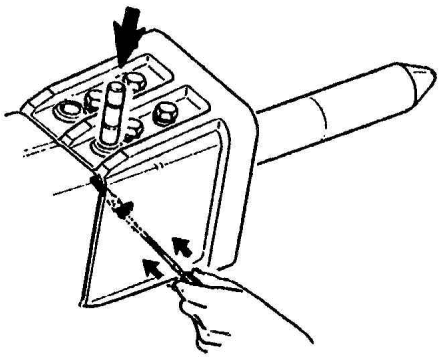
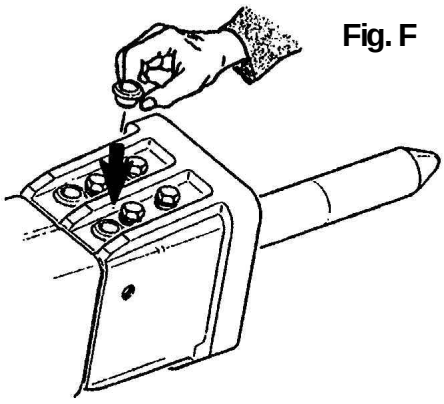


Fig. F



TOOL MOUNTING

On a brand new breaker, remove the plastic protection cover at the bottom of the front guide.

Lift the breaker and position it horizontally.

Use a screwdriver to push in the lock and keep it pushed in.
Using a different screwdriver, tear off the plastic plug and push the retainer and the second plastic plug out.

Remove the plastic plug and the retainer.
Remove the second retainer.
Hand grease the tool shank, the bushings and the retainers.

Using a lifting device sized according to the weight of the tool, lift the tool keeping it horizontal.

Insert the tool into the front guide. Make sure that the flat edges are well positioned in order to insert the tool retainers.

Do not use fingers to feel the alignment!

Use a screwdriver to push in the lock and keep it pushed in.

Insert the retainer by hand. Push it to the end with a screwdriver and the lock will release itself.

Do not use fingers to push the retainer to the end!

Insert the second retainers.
Mount the plastic plugs.

TOOL REMOVING

Remove the tool retainers.
Remove the tool.

Mind the tool temperature!

Should the breaker be stored without the tool mounted, remount the tool retainers and the plastic plugs.

MONTAGE DE L'OUTIL

Dans le cas d'un brise roche neuf, enlever le bouchon de protection.

Lever le brise roche et l'amener à l'horizontal.

A l'aide d'un tournevis repousser le verrou, le tenir repousser. A l'aide d'un second tournevis, percer le bouchon de protection, repousser la clavette et le bouchon de protection supérieur.

Enlever le bouchon et la clavette.
Démonter la deuxième clavette
Graisser l'emmanchement de l'outil, les douilles et les clavettes.

En utilisant un moyen de levage approprié au poids des outils, lever l'outil en le maintenant horizontal.

Engager l'outil dans le guide avant. Veillez à l'orientation des plats de l'outil par rapport au trou des clavettes.

Ne pas vérifier l'alignement avec le doigt!

A l'aide d'un tournevis repousser le verrou, et le maintenir repoussé

Engager la clavette à la main, la repousser à fond à l'aide d'un tournevis: Le verrou ressort autom atiquement.

Ne pas repousser la clavette avec le doigt!

Monter la deuxième clavette.
Monter les bouchons de protection.

DEMONTAGE DE L'OUTIL

Démonter les clavettes.
Extraire l'outil.

Attention à la température!

Si le marteau doit être stocké sans outil, remonter les clavettes et les bouchons.

Review the general safety instructions.

Before operating the breaker, train yourself to check:

- The position
The rock breaker must be perpendicular to the material face at all times.

- Down pressure
To allow the breaker energy to be transmitted to the material and break it, the tool must be firmly pressed against the material while hammering. Down pressure is adjusted by pulling down the carrier boom and, if required, correcting the breaker position. Keep the breaker perpendicular to the material face by operating dipper stick or bucket controls.

- Down pressure must be correct
If the down pressure is insufficient, the breaker energy will be partly dissipated into the tool, the breaker itself and into the carrier boom, instead of being transmitted to the material. This generates abnormal vibrations and induces blank strikes.

If, on the other hand, the down pressure is so high as to lift the carrier at the moment of the breakage of the material, the carrier will drop suddenly.
This will create dangerous and destructive shocks for the tool, tool retainers, breaker thrusts, carrier booms and other parts.

The carrier boom cylinders can be damaged if they reach the end of their stroke.

- Avoid blank strikes
Prior to hammering, the tool must be pressed against the material face.
Blank strikes (tool not properly in contact with the material) lead to fast wear of the tool retainer and are the origin of tool breakages.
When blank striking, the breaker sounds high pitched and metallic.

Revolr les Instructions générales de sécurité principalement chapitre "utilisation".

Avant d'utiliser le brise roche pour la premiére fois, habituez vous à contrôler

- La position
Le brise roche doit toujours être perpendiculaire à la surface du matériau à casser.

- La poussée
Pour que l'énergie du marteau soit transmise au matériau et provoque sa rupture, il faut que l'outil soit maintenu fermement en appui contre le matériau pendant toute la durée de frappe. La poussée se règle en abaissant le bras du porteur, et, au besoin pour corriger la position du brise roche et le maintenir perpendiculaire à la surface à démolir en manoeuvrant les commandes de godet ou de balancier.

- Il faut que la pousséo soit correcte
Si la poussée est insuffisante, l'énergie du brise roche au lieu d'être transmise au matériau se dissipera en partie dans l'outil, dans le brise roche et dans le bras du porteur, créant des vibrations anormales et provoquant des frappes à vides.

Si par contre la poussée est trop forte, au point de soulever le porteur, lors de la rupture du matériau, l'excavateur retombera brusquement en avant.
Cela provoquera des chocs dangereux et destructeurs pour l'outil, les claveftes, les butées du brise roche, le bras et autres parties du porteur.

Les vérins de bras du porieur ne doivent pas être en butée avant ou arriàre, lis n'y résisteraient pas.

- Ne pas faire frapper le marteau à vide
Avant de faire frapper le marteau, l'outil doit être en appui contre la surface à casser.
Les frappes à vide (outil insuffisamment appuyé) provoquent la destruction rapide des clavettes de retenues et sont la cause de casses d'outils.
Lorsque le brise roche frappe à vide, les coups ont un son aigu, métallique.

When In use, keep the breaker perpendicular

If the breaker is not perpendicular, the tool may slip off and get stuck between guiding bushings.
Severe friction created between tool and bushings leads to seizing which will result in tool breakages, bushing breakages or the lower bushing sliding off.
Energy dissipated into the side plates or into the cradle of the breaker leads to welding breakage.

Never operate the breaker at the same place for more than 15 seconds.

If the material has not been broken at this time, reposition the breaker in another spot.
Operating the breaker too long at the same place may heat up the tool. This may cause the point may dull (mushrooming) and the shank may seize.
When breaking boulders, do not start from the center. Production is higher when breaking slices, beginning at the most favorable faces.

Do not use the tool as a lever
- To finish splitting the rock.
- To move boulders.

High forces applied onto the breaker may be the origin of:
- Cracks in the cradle or side plate welds.
- Destruction of lower bushing by crushing it.
- Tool breakage.

Pendant le travail maintenir le brise roche perpendiculaire

Si le brise roche n'est pas perpendiculaire, l'outil glisse sous l'effet de la poussée et coince entre les douilles de guidage.
Les frottements importants créés entre outil et douilles provoquent des grippages conduisant à la casse de l'outil, la destruction des douilles, voir l'extraction de la douille inférieure.
L'énergie dissipée dans les plaques latérales ou le caisson du marleau, provoque la rupture des soudures.

Ne pas faire frapper le brise roche au même endrolt plus de 15 secondes.

Si la roche n'a pas cassée pendant cette période, repositionner le marteau à un autre emplacement.
Faire fonctionner le marteau trop longtemps à la même place peut provoquer un échauffement important de l'outil:
- L'extrémité peut être refoulée (champignonnage), l'emmanchement peut gripper.

Lors de la casse de blocs, il est préférable de ne pas les aftaquer au centre. Le rendement est bien meilleur en procédant par degré et en attaquant d'abord les faces les plus favorables.

Ne pas utillsor l'outil comme levier
- Pour finir de casser le matériau.
- Pour déplacer les blocs.

Les forces importantes appliquées au marteau sont à l'origine:
- De fissuration des soudures du berceau ou des plaques latérales.
- De la destruction de la douille inférieure par écrasement.
- De la rupture de l'outil.

Do not use the breaker under water

For underwater operation (even for a short time), it is essential to pressurize the breaker front part to prevent water from entering inside the breaker.

See page O13.

The breaker must be pressurized prior to being plunged into water and remain so while it is under water.

Note: Pressurization is also essential every time there is a possibility for debris to enter the front part (scaling, for example).

If the weather is cold, do not start working without preheating the breaker

Start up the carrier and preheat oil.

Raise the breaker from the ground so that the tool is hung up. Feed the breaker with reduced flow (idle the carrier engine) for 5 minutes.

Start work, increasing the flow gradually.

Grease the tool shank

If the breaker is not equipped with an automatic lubricating station, grease the tool shank every 2 hours (5 to 10 shots with a hand grease pump).

Use molybdenum bisulphide grease

Ne pas utiliser le marteau sous l'eau

Dans le cas d'un travail sous l'eau (même pour une courte durée), il est nécessaire de pressuriser la partie avant du marteau, pour éviter que l'eau ne pénètre à l'intérieur.

Consulter page O13.

Le marteau doit être pressurisé avant d'être immergé et jusqu'à ce qu'ii soit retiré de l'eau.

Note : La pressurisation est aussi indispensable chaque fois que des débris peuvent pénétrer dans le marteau (purgeage, par example).

Par temps froid, ne pas commencer le travail sans avoir préchauffé le marteau

Démarrer le porteur et faire préchauffer l'huile.

Lever le brise roche pour que l'outil ne soit pas en appui sur le sol, alimenter le marteau avec un débit réduit (moteur du porteur au ralenti) pendant cinq minutes.
Commencer le travail en augmentant progressivement le débit.

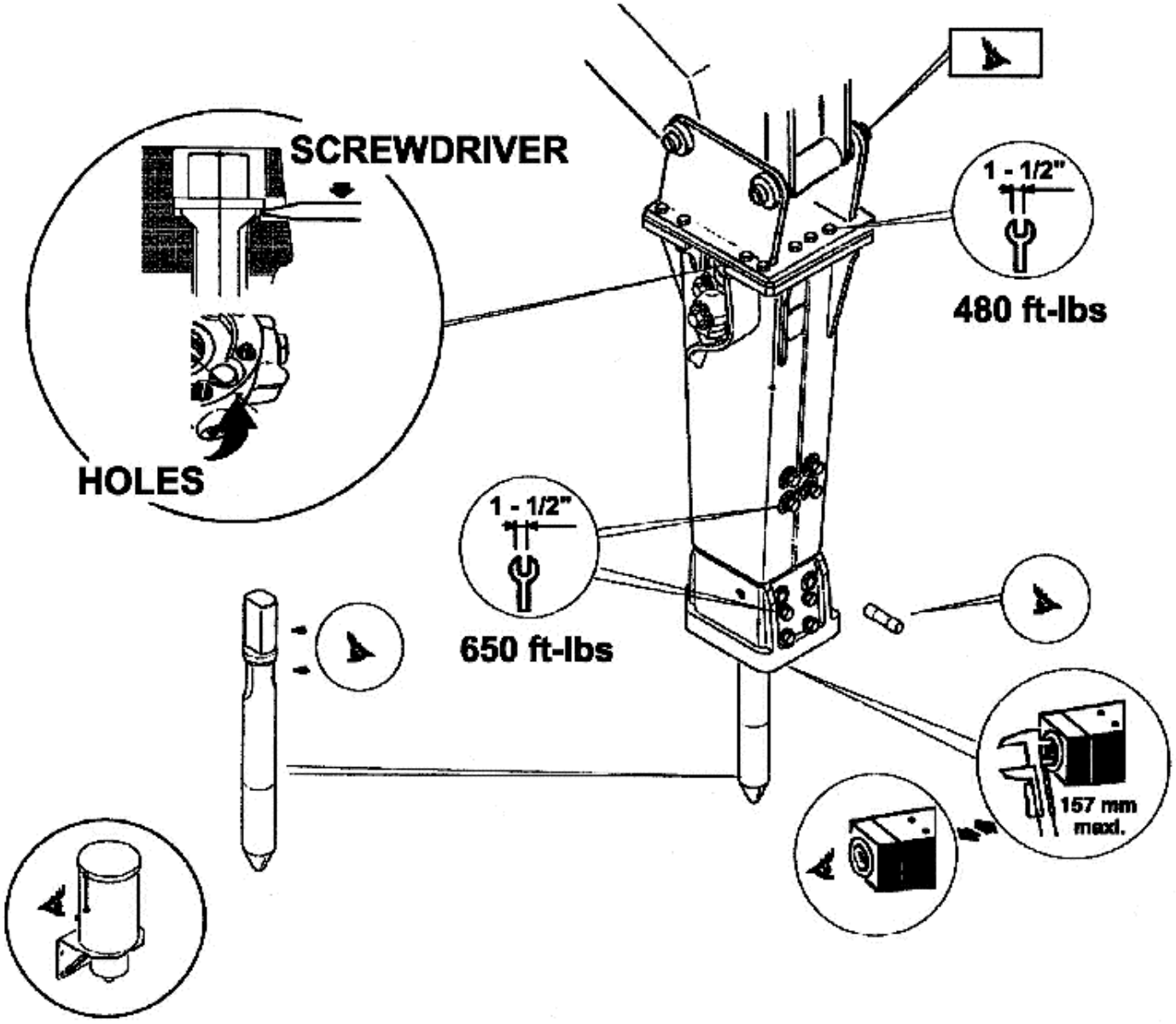
Graisser l'emmanchement de l'outil

Si le marteau nest pas équipé dune central de graissage automatique, graisser l'outil toute 2 heures de travail environ (5 ou 10 coups de pompe à graisse).

Utillser de la graisse au bisulfure de molybdène

Daily
Toutes les jours

Weekly
Toutes les semaines



EVERY 2 HOURS

Grease the tool shank.

DAILY

Check the breaker attachment at the boom end.

Make sure that a side rod is not broken.

WEEKLY

Check tightening of side fixing cap bolts.

Check tightenning of wear plate screws.

Remove the tool.

Check the tool shank and striking face condition.

Replace the tool if deeply scratched.

Check the tool retainer condition.

Replace if it shows important marks.

Check the lower bushing wear.

Call your TRAMAC distributor if wear limit is reached.

Check the grease level of the automatic greaser if installed.

TOUTES LES 2 HEURES D'UTILISATION

Graisser l'emmanchement de l'outil.

TOUSLES JOURS

Vérifier la fixation du marteau en bout de bras.

Vérifier qu'un tirant d'assemblage ne soit pas cassé.

CHAQUE SEMAINE

Contrôler le serrage des boulons de fixation des plaques latérales.

Contrôler le serrage des palques de guidage dans berceau.

Démonter l'outil.

Vérifier l'état de l'emmanchement et de la face de frappe.

Remplacer l'outil s'il présente des grippages importants.

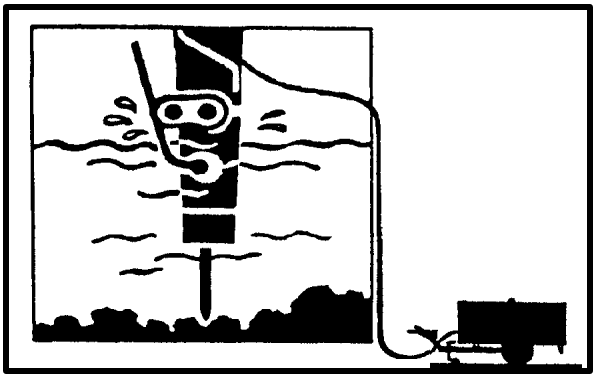
Vérifier l'état de la clavette de retenue.

La remplacer si elle présente des traces de choc importants.

Contrôler l'usure de la douille inférieure.

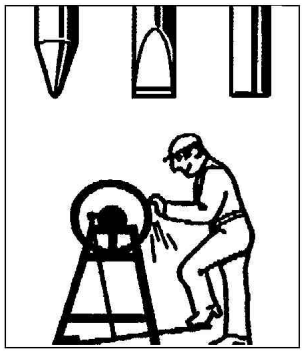
Demander lintervention d'un technician TRAMAC pour la remplacer quand la limits de l'usure est atteinte.

Vérifier le niveau de graise dans la centrale automatique si montée.



The TRAMAC Model V45 in the standard version must not be used for underwater work, even for very short periods of time. If the chamber between the piston and the tool fills with water when the piston strikes, the water will not be evacuated fast enough and a considerable pressure rise will then occur and destroy the piston seal (with a risk of piston seizure).

Compressor Pressure: Pressure from the compressor must be at least 22 psi above the water pressure at the working depth. Water pressure equals 14.5 psi for every 30 feet of depth. Through the first 30 feet, 36.5 psi of air pressure is required.



Tool Life: TRAMAC working tools are made from a special steel far superior to any tool steel commercially available. Unlike other tools on the market, our steel is hardened all the way through - no thin shell of hard steel which wears quickly. When the tools lose their edge, either at the tip or on the sides, it is possible to sharpen them without repeating heat treatment, using one of the following methods:

A) With a milling or planning machine for chisels and spades, or with a lathe for the moils and blunt tools. These operations must be completed using an adequate type of hard metal tool.

B) By sharpening: This operation must be performed using a coolant to prevent the tool from overheating.

Caution

As a general rule, never let the tool cool quickly or suddenly, even when it is used with the breaker.

Dipping the tool into water when it has been heated in the course of work or leaving it in the snow in the winter, will result in a drenching effect on the tip or cutting bit and increase the risk of breakage.

Tools are covered by TRAMAC against metal defects (very uncommon). It is not unusual that some operations (working at angles or blank firing) lead to tool breakage, including inside the chuck housing.

The use of after market tools will void your warranty for any claim related to parts in contact with the tool (including the main piston).

How a demolition tool cracks rock and concrete

When the hammer piston strikes the top of a demolition tool, it sends a compressive stress wave down to the working end of the tool. Provided that the demolition tool is in contact with the rock or concrete which requires breaking, it is this compressive stress wave which fractures the rock. Then, immediately following the compressive wave, a tensile stress wave is formed due to the hammer piston lifting from the top of the demolition tool.

The cycle of compressive and tensile stresses flowing down the tool is repeated for each hammer blow. Obviously, anything that interferes with the strength of the compressive stress wave during service, for example "blank firing" or bending of the demolition tool due to leverage, will result in loss of breaker efficiency of up to 80% and possible failure of the tool itself.

Correct operating conditions

The continuous cycle of compressive and tensile stresses in the demolition tool, even under correct operating conditions, creates fatigue stress in the tool which can lead to the fatigue failure of the tool before it is worn out. Anything that interferes with the cycle of compressive and tensile stresses will also increase the level of fatigue stress being applied to the demolition tool and, thus, increase the risk of early fatigue failure of the tool.

The main cause of increased fatigue stress in a demolition tool is any form of side pressure during service which creates bending. Thus, utilizing the tool as a lever, using an incorrect driving angle or attempting to break ground using the pull of the excavator, are all detrimental to the life of a demolition tool and should be avoided.

Caution

The hydraulic power available in the machine far exceeds the strength of a demolition tool if it is used incorrectly and can "snap the tool like a pencil".

Demolition tool fatigue failure

Demolition tool fatigue failure will occur in approximately 4 inches from either side of the chuck front face or through the retainer pin flat. Another slightly less common failure area can fall approximately 8 inches from the working end, subject to the nature of use. The fracture face itself will normally exhibit semi-circular polished area with the remainder being of rougher appearance. The polished semi-circular area is the fatigue area and generally starts from a damage mark or other stress initiated on the outside of the demolition tool and spreads inward.

The fatigue area slowly widens until the stresses being applied to the demolition tool cause sudden failure of the remaining section. Generally, the size of the fatigue area indicates the level of stress applied to the tool, i.e., the smaller the fatigue area, the higher the stress level. However, it must be borne in mind that once initiation of a fatigue crack has taken place, it requires a lower stress level to cause it to grow.

Causes of increased fatigue stress in a demolition tool

A. Free running (or blank firing)
Free running occurs when the hammer piston strikes the top of the demolition tool when the working end is not in proper contact with the rock or concrete to be broken. This includes jobs where the tool slides off the working area and also when breakthrough of thin concrete slabs or boulders occurs.

B. Cold:
Low temperatures cause a demolition tool to be more susceptible to fatigue failure. Tools should be warmed before use.

C. Mechanical and thermal damage:
Any form of damage to the surface of a demolition tool renders it more liable to suffer fatigue failure. Thus, all care must be exercised to prevent scratches, gouges or weld marks occurring due to accidental damage and galling caused by contact between the tool and the chuck bushing through the lack of lubrication or excessive bending.

D. Lubrication:
Care must be taken to avoid metal-to-metal contact that, as a result of galling, could cause deep damage marks which, in turn, may lead to the formation of fatigue cracks and eventually failure of the demolition tool. Make sure that the shank of the demolition tool is well lubricated before inserting it into the hammer.

E. Corrosion:
A rusty demolition tool is more likely to suffer fatigue failure. Keep tools well greased and sheltered from the weather when not in use.

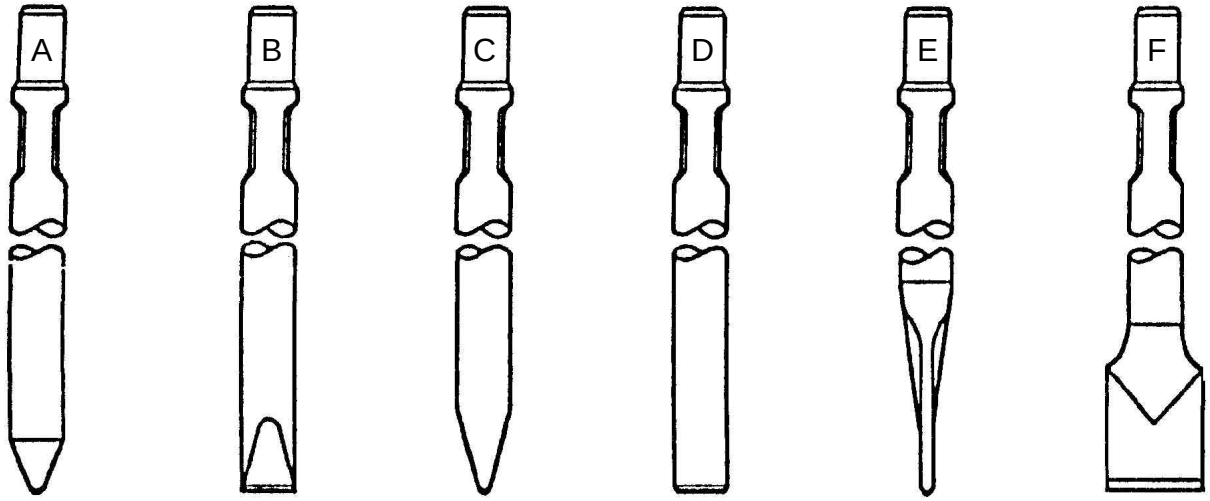
Typical failures

TRAMAC demolition tools are manufactured from first class materials and then heat treated to produce a fatigue and wear resistant tool. Thus, when the tool has apparently failed to give a satisfactory service life, a brief visual inspection can often give a quick indication of the failure cause.

Wear is dictated by the conditions of the material being broken. In general, however, the following guidelines apply:

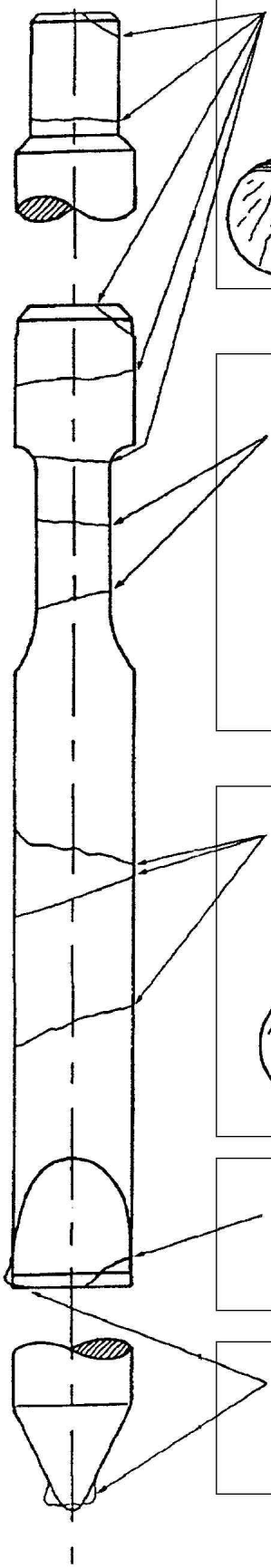
Blank tools worn more than 1/3 of their diameter, or moils and chisels worn back more than 2 inches from the working end, are classed as reasonable life.

TRAMAC demolition tool guide



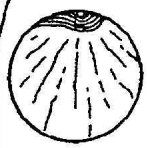
Ref	Tool type	Application
A	Moil point	Low abrasive, homogenous material
B	Chisel	Plastic or heterogeneous material
C	In-line chisel	Plastic or heterogeneous material
D	Blunt	Crumbly rock
E	In-line asphalt cutter	Asphalt cutter and trenching
F	Spade Frost	Asphalt and trenching

BREAKAGE CHART



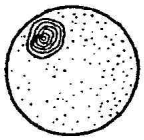
Failure due to blank firing or excessive wear of bushings and/or chuck housing.

NO WARRANTY



Failure due to
- operation with worn out retaining pins
- blank firing
- twisting tool

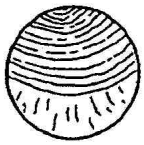
NO WARRANTY



Fatigue breakage with typical fatigue wrinkles due to steel defect.
100 % WARRANTY

Typical failure caused by misalignment between down pressure, hammer, and tool (prying, levering, etc).

NO WARRANTY



Breakage due to improper contact between the tool's tip and rock or concrete.

NO WARRANTY

Mushrooming or fast wearing caused by operating too long on the same spot.

NO WARRANTY

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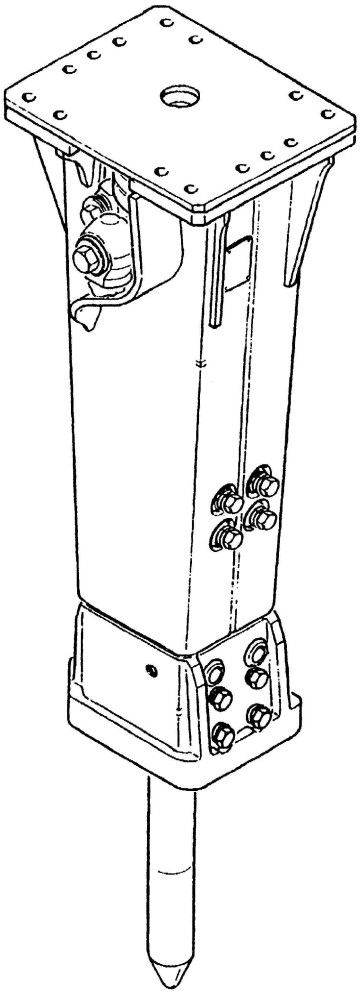
MODEL V45
PARTS MANUAL

Form No. M1017-P

Revision 7



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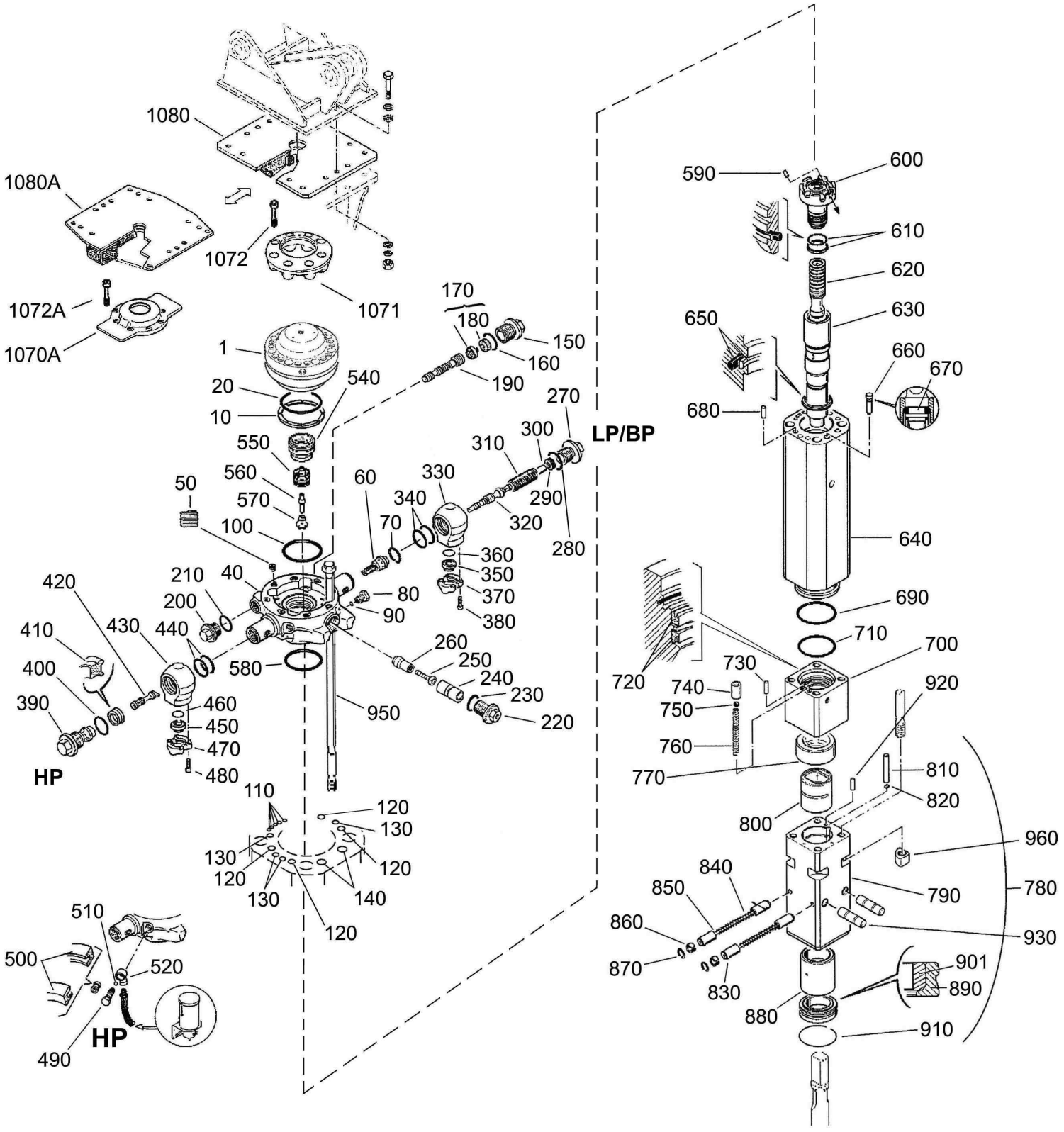
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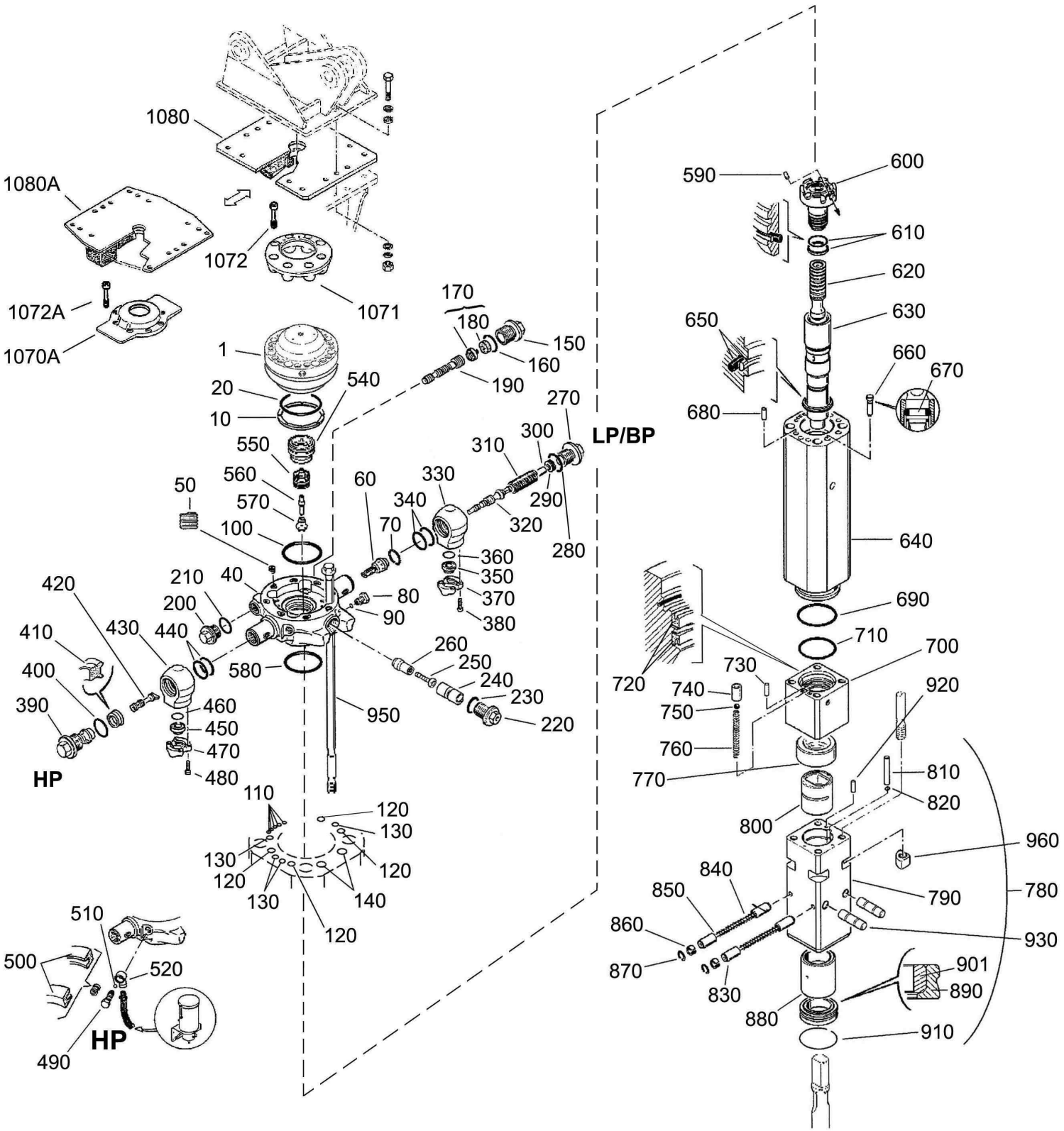
	Item	Part Number	Ref #	Qty.	DESCRIPTION	DESCRIPTION
**					**ACCUMULATOR**	**ACCUMULATEUR**
	1	86494978	95484	1	Accumulator	Accumulateur
•	10	86384278	82872	1	Nylon ring	Bague nylon
•	20	86373123	79744	1	O-ring	Joint torique
					BACK HEAD	**TETE ARRIERE**
	40	86502507	96014	1	Back head incl:	Tête arrière comp:
•	50	86373115	79743	8	(Helicoil thread UNF 1 1/8”	(Filet hélicoïl UNF 1 1/8”
	60	86371846	79432	1	(Lining	(Chemise de tiroir
	70	86362704	76943	1	(Rush	(Jonc
	80	86389954	84031	3	(Plug	(Bouchon
•	90	86352481	73008	3	(O-ring	(Joint torique
•	100	86373123	79744	1	O-ring	Joint torique
•	110	86352481	73008	5	Tight seal	Joint d'étanchéité
•	120	86355906	74397	3	Tight seal	Joint d'étanchéité
•	130	86392115	84578	4	O-ring	Joint torique
•	140	86349990	71834	2	Tight seal	Joint d'étanchéité
					Regulation	**Régulation**
	150	86349867	71815	1	Plug	Bouchon
•	160	86349875	71816	1	O-ring	Joint torique
	170	86356128	74533	1	Centering piece including:	Cimblot comprenant:
	180	86356136	74535	1	(Ring	(Bague
	190	86371838	79431	1	Strike regulator slide	Tiroir régulateur course
	200	86384260	82871	1	Plug	Bouchon
•	210	86349875	71816	1	O-ring	Joint torique
	220	86583838	N/A	1	Valve plug	Bouchon de clapet
•	230	86349875	71816	1	O-ring	Joint torique
	240	86380904	81786	1	Valve body	Corps de clapet
	250	86380920	81788	1	Valve	Clapet
	260	86380912	81787	1	Valve lining	Chemise de clapet
					Swivels	**Raccords Tourants**
					LP	**BP**
	270	86412301	89887	1	Threaded plug	Bouchon filets
•	280	86349875	71816	1	O-ring	Joint torique
	290	86366432	78117	15	Shim	Rondelle de calage
	300	86362738	76948	1	Pin	Axe
	310	86255825	21838	1	Spring	Ressort
	320	86371853	79434	1	Slide	Tiroir
	330	86390721	84222	1	Knee piece 1 1/4 S6	Genouillère 1 1/4 S6
•	340	86223179	9775	2	O-ring	Joint torique
	350	86340957	67211	1	Collar SAE	Collet SAE
•	360	86284312	39732	1	O-ring	Joint torique
	370	86332244	63538	2	Half clamp	Demi-bride
	380	95502456	38352	4	Screw UNF 1/2”	Vis CHc UNF 1/2”

• Included in Seal Kit

** Accumulator Breakdown - See page P12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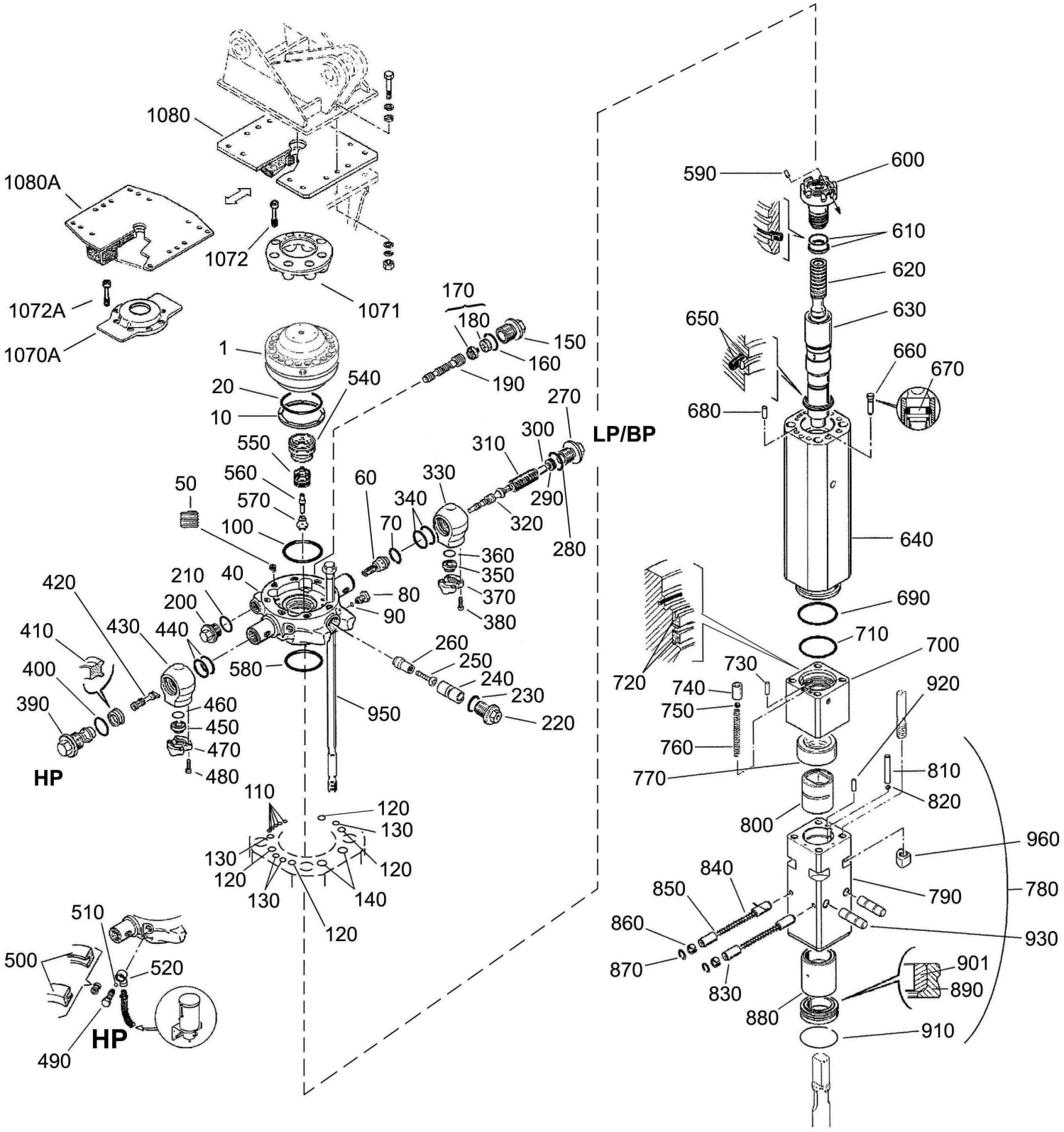
	Item	Part Number	Ref #	Qty.	DESCRIPTION	DESCRIPTION
					Swivels	**Raccords Tourants**
					HP	**HP**
	390	86381001	81815	1	Threaded plug	Bouchon fileté
•	400	86349875	71816	1	O-ring	Joint torique
•	410	86381035	81818	1	Lip seal	Joint de tige
	420	86381019	81816	1	Slide	Tiroir
	430	86390721	84222	1	Swivel	Genouillère 1 1/4”
•	440	86223179	9775	2	O-ring	Joint torique
	450	86340957	67211	1	Collar SAE	Collet SAE
•	460	86284312	39732	1	O-ring	Joint torique
	470	86332244	63538	2	Half clamp	Demi-bride
	480	95502456	38352	4	Screw UNF 1/2”	Vis CHc UNF 1/2”
					Lubrication	**Graissage**
	490	86231644	7294	1	Knee piece axle	Axe de genouillère
•	500	86238466	12817	2	Equal lip seal	Joint à lèvres égales
•	510	86352481	73008	1	Tight seal	Joint d'étanchéité
	520	86355500	74256	1	Knee piece 3/8" NPTF	Genouillère 3/8" NPTF
					DISTRIBUTION	**DISTRIBUTION**
	540	86384955	83013	1	Distribution box	Boite de distribution
	550	86384963	83014	1	Distributor	Distributeur
	560	86406451	88581	1	Complete plunger	Plongeur complet
	570	86384971	83018	1	Overpressure valve	Clapet de surpression
•	580	86278561	35409	1	O-ring	Joint torique
	590	86350006	71847	1	Pin	Goupille
	600	86383833	82750	1	Thrust piston guide	Culasse
•	610	86480783	92583	1	Piston seal	Joint de piston
	620	86383817	82748	1	Thrust piston	Piston de poussée
	630	86383809	82747	1	Strike piston	Piston de frappe
					CYLINDER	**PARTIE CYLINDRE**
	640	86382454	82325	1	Cylinder	Cylindre
•	650	86373156	79748	1	Rod seal	Joint de tige
	660	86590502	N/A	1	Complete valve incl:	Clapet complet comp:
•	670	86223740	3718	1	(O-ring	(Joint torique
	680	86362712	76946	1	Pin	Axe lisse
•	690	86373149	79746	1	O-ring	Joint torique

• Included in Seal Kit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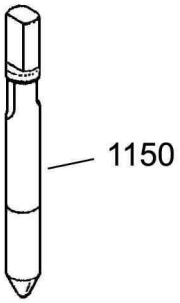
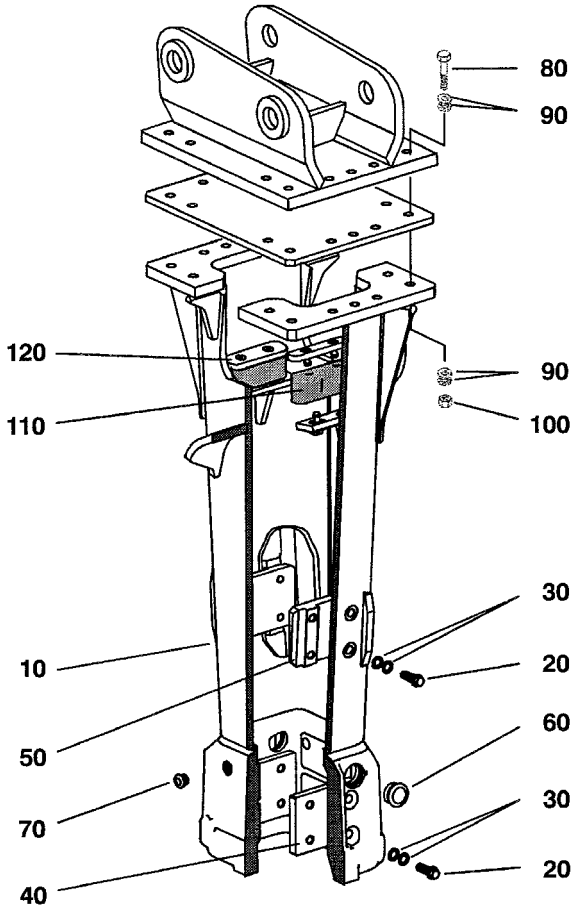
	Item	Part Number	Ref #	Qty.	DESCRIPTION	DESCRIPTION
					SPACER	**PARTIE ENTRETOISE**
	700	86422714	93598	1	Spacer	Entretoise
•	710	86373149	79746	1	O-ring	Joint torique
•	720	86384245	82869	2	Unequal lip seal	Joint à lèvres inégales
	730	86362712	76946	1	Pin	Axe lisse
	740	86350048	71863	1	Ball seat	Siège de bille
	750	86285343	40530	1	Ball	Bille
	760	86353547	73477	1	Spring	Ressort
	770	86579034	N/A	1	Shank thrust	Butée d'emmanchement
					FRONT GUIDE	**GUIDE AVANT**
	780	86588613	N/A	1	Comp. front guide incl:	Guide avant complet comp:
	790	86588605	N/A	1	(Front guide	(Guide avant
	800	86474897	94464	1	(Upper chuck bushing	(Douille supérieure
	810	86475167	94475	1	(Pin	(Axe
•	820	86228962	5330	1	(O-ring	(Joint torique
	830	86422763	93548	4	(Lock	(Verrou
	840	86362837	76975	2	(Spring	(Ressort
	850	86378353	81137	2	(Spring guide	(Guide ressort
	860	86422813	93499	2	(Elastic pin	(Goupille élastique
	870	86385937	83172	2	(Snap ring	(Jonc
	880	86509932	96567	1	(Lower chuck bushing	(Douille inférieure
	890	86509940	96568	1	(Ring	(Bague
	901	86565231	96748	1	(Scraper seal	(Joint racleur
	910	86585254	N/A	1	(Snap ring	(Jonc
	920	86362712	76946	1	Pin	Axe lisse
	930	86576303	97052	2	Pin	Axe
					ASSEMBLING	**ASSEMBLAGE**
	950	86594785	N/A	4	Assembling bolt	Vis d'assemblage
	960	86477163	94613	4	Nut	Ecrou
					SUSPENSION	**SUSPENSION**
					Upper HD	**Supérieure HD**
	1071	86510146	96584	1	Support disk	Disque d'appui
	1072	86510112	96582	8	Screw, UNF 1 1/8”	Vis CHc UNF 1 1/8”
	1080	86385572	83109	1	Shock absorber	Amortisseur
					Option: Upper subtle	**Variante: Supérieure souple**
	1070A	86510286	96597	1	Support disk	Disque d'appui
	1072A	86510310	96601	8	Screw, UNF 1 1/8”	Vis CHc UNF 1 1/8”
	1080A	86385606	83112	1	Shock absorber	Amortisseur
	SEE PAGE 10:					
					Lower	**Inférieure**
	110	86582152	N/A	2	Absorber	Amortisseur
	120	86592490	N/A	2	Bar	Barrette

• Included in Seal Kit

Model V45 Cradle

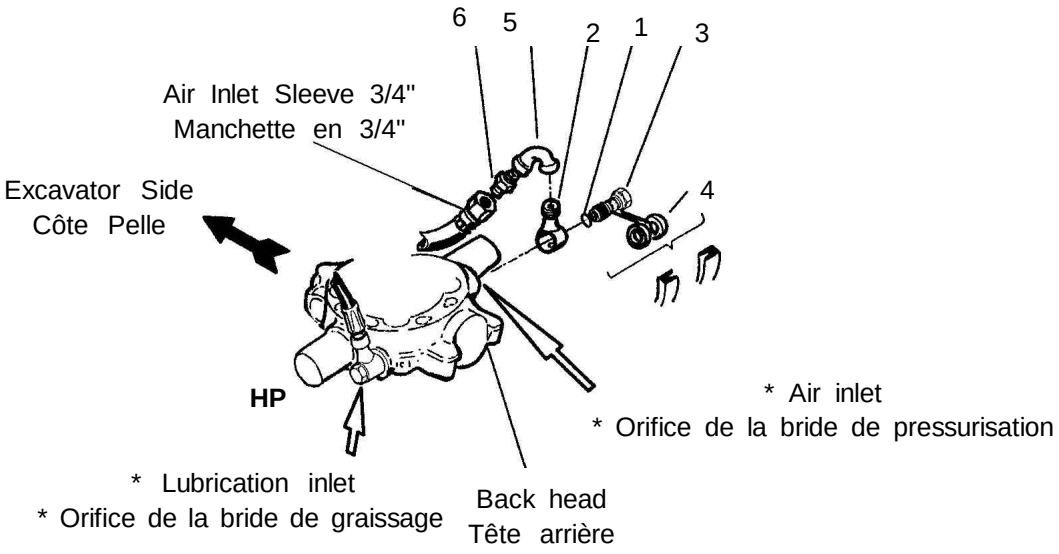




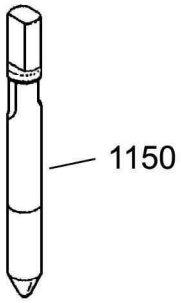
Model V45 Air Inlet

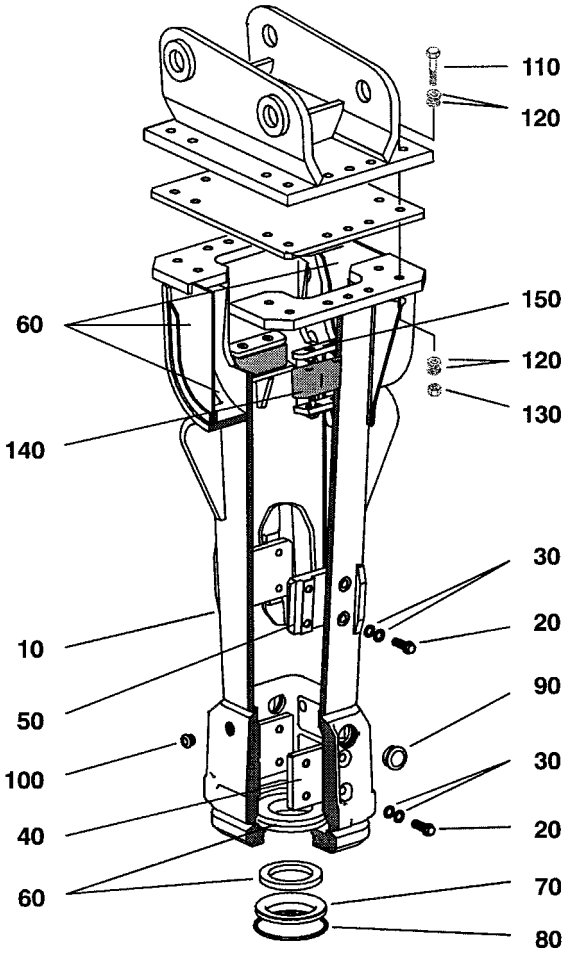
Weight of kit = 2 lbs.
Poids du kit = 0.9 kgs.

* Remove Plug
* Enlever le Bouchon



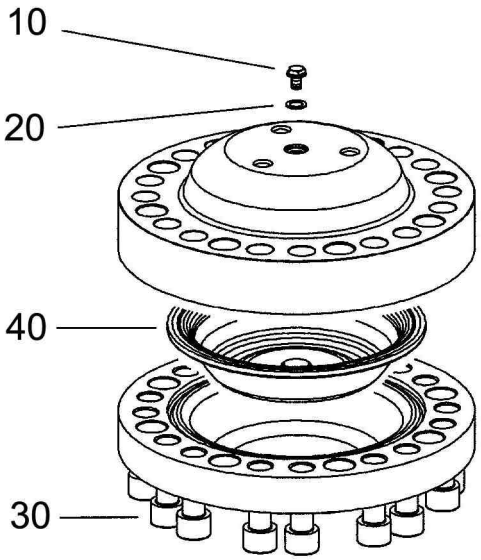
Item	Part Number	Ref #	Qty.	DESCRIPTION	DESCRIPTION
				STANDARD CRADLE	**BERCEAU STANDARD**
10	86582251	N/A	1	Cradle including	Berceau comprenant
20	86576444	97064	16	(Screw UNF 1”	(Vis UNF 1"
30	86307493	51743	32	(Washer "two mounted at a time"	(Rondelle "montees par deux"
40	86486909	95041	2	(Guiding slipper	(Patin de guidage
50	86506961	96432	2	(Guiding slipper	(Patin de guidage
60	86473048	94346	4	Plastic plug	Bouchon plastique
70	86473030	94345	4	Plastic plug	Bouchon plastique
80	86576436	97063	14	Screw UNF 1”	Vis UNF 1"
90	86307493	51743	56	Washer "two mounted at a time"	Rondelle "montees par deux"
100	86510005	96574	14	Nut	Ecrou H
				TOOLS	**OUTILS**
1150	86492246	95295	1	Moil point	Broche pic
	86492238	95294	1	Chisel	Broche burin
	96492253	95296	1	Blunt tool	Broche pilon
				Transformation Kit	**Kit de Transformation**
	86372505	79619	1	Pressurization kit incl:	Kit de pressurisation comp:
1	86352481	73008	1	Tight seal	Joint d'étanchéité
2	86231651	7295	1	Knee piece	Genouillère
3	86251832	19716	1	Knee piece axle	Axe de genouillère
4	86238466	12817	2	Equal lip seal	Joint à lèvres égales
5	86237195	11752	1	90º bent sleeve	Manchon coudé 90º
6	86302650	50000	1	Adapter 3/4"	Mamelon 3/4" Gaz
				ACCESSORIES	**ACCESSOIRES**
	86481066	94712	1	Seal kit incl:	Pochette rechange comp:
10			1	Nylon ring	Bague nylon
20-100			2	O'ring	Joint torique
50			8	Helicoil thread UNF 1 1/8”	Filet hélicoïl UNF 1 1/8”
90-110-510			7	Tight seal	Joint d'étanchéité
120			4	Tight seal	Joint d'étanchéité
130			4	O-ring	Joint torique
140			2	Tight seal	Joint d'étanchéité
160-210-230-280-400			5	O-ring	Joint torique
340-440			4	O-ring	Joint torique
380			1	O-ring	Joint torique
420			1	Lip seal	Joint à lèvres
480			1	O-ring	Joint torique
500			2	Equal lip seal	Joint à lèvres égales
580			1	O-ring	Joint torique
610			1	Piston joint	Joint de piston
650			1	Lip seal	Joint de tige
670			1	O-ring	Joint torique
690-710			2	O-ring	Joint torique
720			2	Lip seal	Joint à lèvres
820			1	O-ring	Joint torique





Item	Part Number	Ref #	Qty.	DESCRIPTION	DESCRIPTION
				SOUND PROOF CRADLE	**BERCEAU MS**
10	86507829	96499	1	Cradle including:	Berceau comprenant
20	86576444	97064	16	(Screw UNF 1”	(Vis H UNF 1”
30	86307493	51743	32	(Washer "two mounted at a time"	(Rondelle "montees par deux"
40	86486909	95041	2	(Guiding slipper	(Patin de guidage
50	86506961	96432	2	(Guiding slipper	(Patin de guidage
60	86589447	N/A	1	Soundproofing kit	Kit d’insonorisation
70	86583788	N/A	1	Ring	Bague
80	86585445	N/A	1	Snap ring	Jonc
90	86473048	94346	2	Plastic plug	Bouchon plastique
100	86473030	94345	4	Plastic plug	Bouchon plastique
110	86576436	97063	14	Screw UNF 1”	Vis H UNF 1"
120	86307493	51743	56	Washer "two mounted at a time"	Rondelle "montees par deux"
130	86510005	96574	14	Nut	Ecrou H
140	86582152	N/A	2	Absorber	Amortisseur
150	86592490	N/A	2	Bar	Barrette

V45 Accumulator HP/ HP Accumulateur



Tightening torque = 370 ft-lbs
Couple de serrage = 500 Nm

Nitrogen pressure = 725 psi
Pression de gonflage = 50 bar

Item	Part Number	Ref #	Qty.	DESCRIPTION	DESCRIPTION
	86494978	**95484**	**1**	**Accumulator including:**	**Accumulateur comprenant:**
10	86241403	14826	1	Ring	Bague BS
20	86265048	26428	1	Inflation screw	Vie de gonflage
30	86381340	81958	16	Screw CHc UNF 7/8”	Vis CHc UNF 7/8”
40	86392537	84672	1	Diaphragm	Membrane d’accumulateur

TROUBLE SHOOTING … REMEDIES

A - Oil leakage on hammer.

Damaged or worn seals.
Call your TRAMAC distributor.

B - The breaker loses power; high vibrations in breaker hoses.

The accumulator is deflated or diaphragm punctured. Check the oil temperature.
If oil is too hot, ask a technician to check the breaker circuit relief valve setting.
Call your TRAMAC distributor.

C - The hammer operates normally, then slows down and stops. A few minutes later the hammer will start again then stop again.

Hydraulic oil is too hot.
Excavator circuit must be checked for heat source. If necessary, reduce the breaker operating pressure.

D - One side rod bolt has broken.

Stop working immediately and call your TRAMAC distributor.

E - After connection to carrier, the breaker operates for few blows then stops.

The return hose is plugged. Check the quick coupling seat (if installed).

Recommendation: Check oil temperature and settings of carrier relief valves. If relief valve is not adjusted properly, oil may heat up quicker due to the high total power of rock breaker. This will cause the rock breaker to perform poorly.

PANNES POSSIBLES … REMÉDES

A - Fulte d'hulle au niveau du marteau.

Joints d'étanchéité endommagés ou usés. Consultez votre distributeur TRAMAC le plus proche.

B - Le marteau manque de puissance, les flexibles de raccordement battent.

L'accumulateur est dégonflé, la membrane de l'accumulateur est percée. Vérifier la température de l'huile. En cas d'échauffement important, faire vérifier par un technicien, le réglage des clapets de décharge du circuit de pelle. Consultez votre distributeur TRAMAC le plus proche.

C - Le marteau fonctionne normalement puis la cadence ralentit et le marteau s'arrêite. Quelque temps après le marteau redémarre puis s'arrête.

L'huile hydraulique est trop chaude.
Le porteur doit être vérifié pour trouver l'origine de l'échauffement. Si nécessaire réduire la pression de frappe du marteau.

D - Un tirant d'assemblage est cassé.

Arrdter le travail immédiatement.
Consultez votre distributeur TRAMAC le plus proche.

E - Après adaptation au porteur, le marteau tape quelques coups puis s'arrête.

Le flexible retour est bouché, vérifier le coupleur (si montée).

Recommandation: Le brise roche ayant une puissance globale élevée, veiller au bon refroidissement de l'huile. Un mauvals réglage du clapet de surpression du porteur peut être la cause d'un échauffement important de l'huile entrainant un mauvais fonctionnement du brise roche.

TECHNICAL PROBLEMS

Before looking for a hammer problem, look for a problem in the installation like bad quick couplers or a plugged filter [see page M3 for how to check the installation].

Make sure that the hammer has not been hooked up backwards.

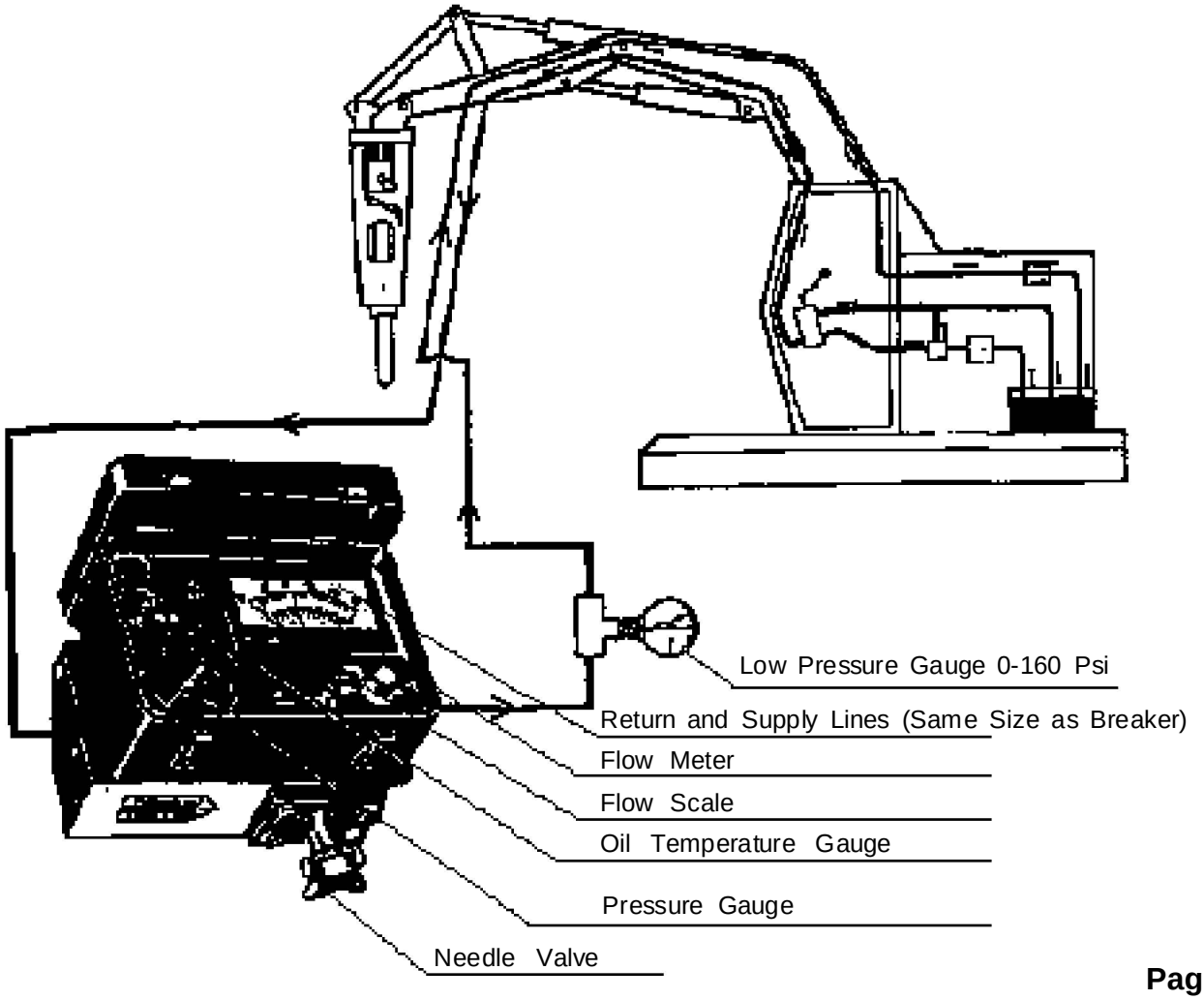
Make sure that the hammer has the proper tool.

Make sure that the down pressure has been applied.

Make sure that no valve(s) are closed.

For any other problem refer to the Trouble Shooting page M1. If you cannot identify the problem, **BEFORE** calling your TRAMAC dealer, collect the following information. A complete diagnosis cannot be done without it.

A. Flow rate in high pressure line running to the hammer at operating temperature and operating pressure.
B. Value of high pressure at hammer inlet when hammer is operating (use a 0-3000 psi gauge).
C. Value of back pressure in return line (use a 0-300 psi gauge).
D. Setting of relief valve in the system. For more details, please refer to page M3.



How to check hydraulic circuit and installation

Mount a flow meter in place of the hammer. Also, mount a low pressure (0-300 psi) gauge on the outlet of the flow meter in order to test the back pressure in the return circuit.

With the flow meter in place, activate the circuit and bring the machine up to operating temperature. Do not test the machine cold.

If the control valve is equipped with solenoid, switch on the solenoid before starting the engine to avoid damage to the flow meter. Do not switch on or off the solenoid when the engine is running. Adjust the flow output to match the requirements of the breaker (48 to 70 gpm).

After the flow has been adjusted, load the flow meter to the hammer operating pressure 2400 psi value plus 600 psi. If necessary, readjust the flow to keep the hammer flow value constant for pressure varying between 1000 psi and hammer operating pressure value (2400 psi) plus 600 psi.

Relief valve problems

If you cannot reach the proper oil flow at the hammer operating pressure value plus 600 psi, you may have a bad system relief setting or a bad hammer control valve.

To check system relief valve, see excavator manual for proper relief setting. Build pressure with the flow meter to determine relief cracking pressure (usually 50 to 200 psi below relief setting). Reset relief if needed.

There should be 400 to 500 psi between hammer regulated pressure value and system cracking pressure or heat may develop.

Pump problems

If you cannot produce proper oil flow against pressure varying from 1000 psi to hammer operating pressure plus 600 psi, the pump could be bad or there is excessive leakage in the circuit.

Hammer control valve problems

If relief valve and pump are good, open and close valve three or four times. The valve spool may be sticking or back pressure is developing on return line.

With the flow adjusted and the flow meter loaded to hammer operating pressure value plus 600 psi, take note of the low pressure gauge reading.

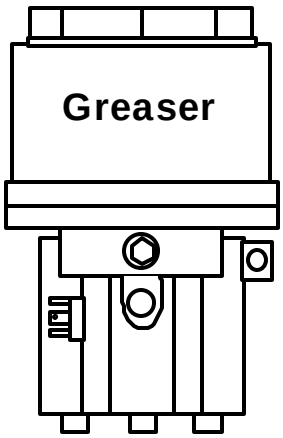
The return pressure should be less than 85 psi. If the back pressure is more than 85 psi, the restriction causing this higher pressure must be found and eliminated.

After the flow meter test is completed, disconnect the flow meter and connect the hoses to the hammer. Mount a high pressure gauge (0-3000 psi) on the hammer HP line and take the machine outside. Run the hammer on a heavy 3 inch by 40 inch by 40 inch steel plate on hard ground and take note of the pressure reading. Call your TRAMAC dealer if pressure adjustments are needed.

GREASE STATION MANUAL

Form No. M1028-PO

Revision 0



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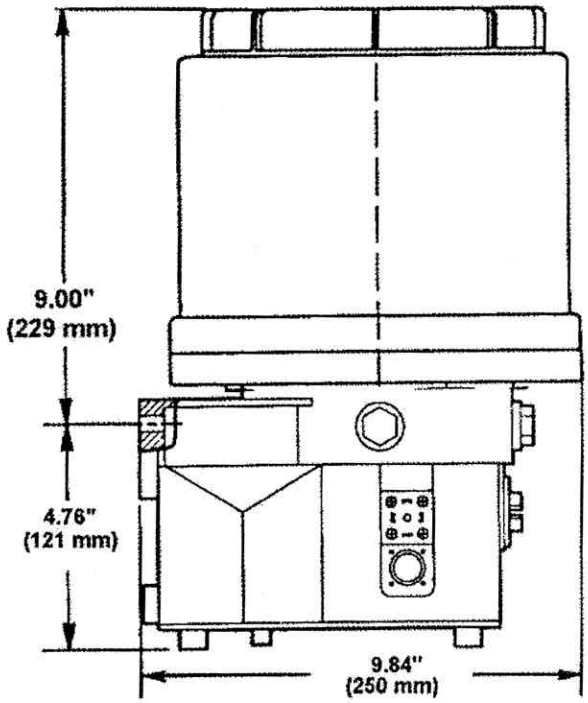
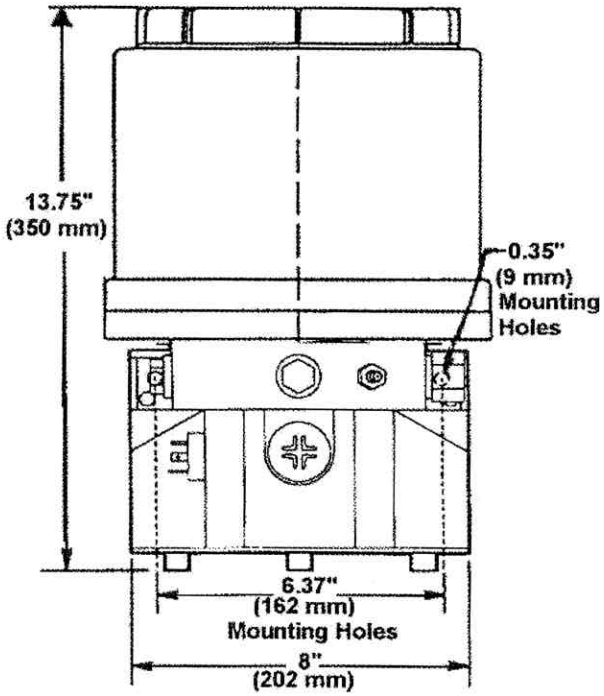




Warning

Do Not Use pump without pressure relief valve.

SPECIFICATIONS

Electrical Requirements	
Model LCN94212	12 VDC @ 3.5 amps
Model 82720L	24 VDC @ 2 amps
Enclosure Rating	IP 54- Protected from water sprayed in all directions.
Pump Output	0.146 cu. in./min (2.4 cm/min)
Outlet Connection	1 /8 " NPT (female)
Maximum Recommended Operating Pressure	3600 psi (248 bar)
Reservoir Capacity	244 cu. in. t4000 cc}
Lubricant	Greases up to NLGI grade 2 (with 3% molly) 450ºF
Temperature Range	-13°F(-25°C} to + 1 58°F(+70°C)
Pressure Relief Valve	4000 ps' +/- 250 psi (276 bar) + /- (1 7 bar)

DESCRIPTION

The chassis lube pump is electrically operated and used in a progressive type centralized lubrication system. The pump consists of a pump housing, electric gear motor, a timer and a plastic reservoir with stirring paddle. The high operating pressure allows the pump to supply lubricant up to NLGI #2 grease.

MOUNTING THE PUMP

Select an easily accessible place of installation which allows access to the timer and lubricant reservoir filler fitting. The pump must be mounted vertically on an even surface by means of three bolts. (See Fig. 1 on page 3.)

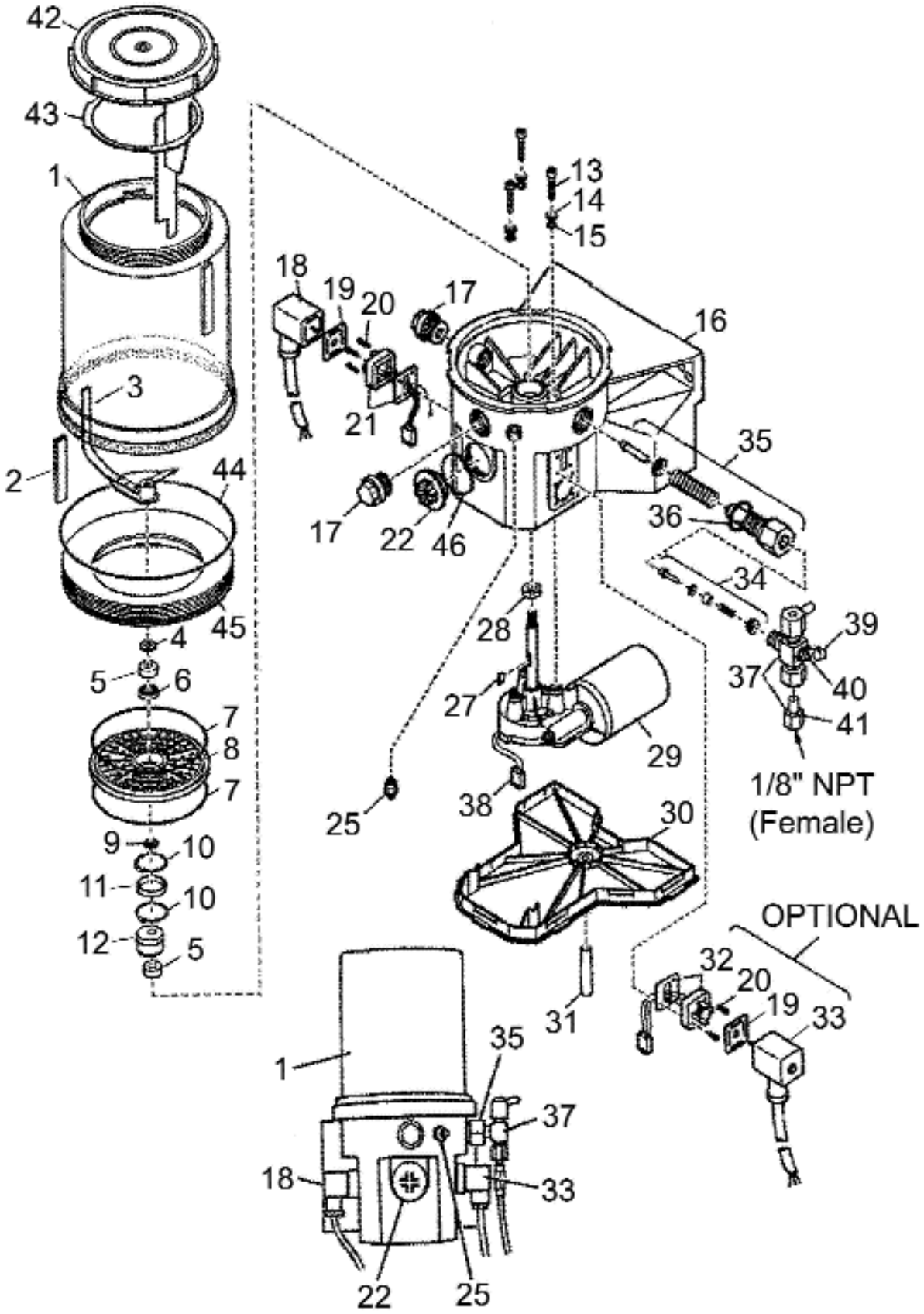
TO FILL RESERVOIR

Fill the reservoir through the grease fitting located at the base of the reservoir, using a hand operated grease pump. Refill reservoir when grease reaches "MIN" mark located on the reservoir. Fill the reservoir up to the "MAX" mark located on the reservoir.

TO PRIME SYSTEM

Pump & Supply Line: After reservoir has been filled with recommended lubricant, loosen the supply line fitting. Operate the pump until lubricant flows from gullet, then tighten fitting.

Feed Lines: Pre-fill each feed line with lubricant before connecting to outlet of divider valve and bearing.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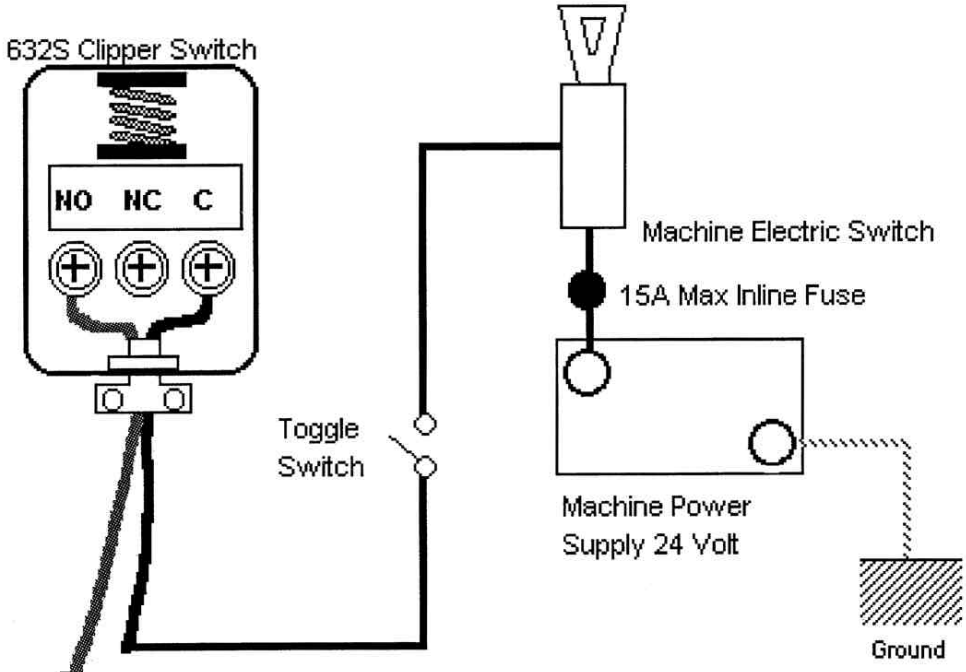
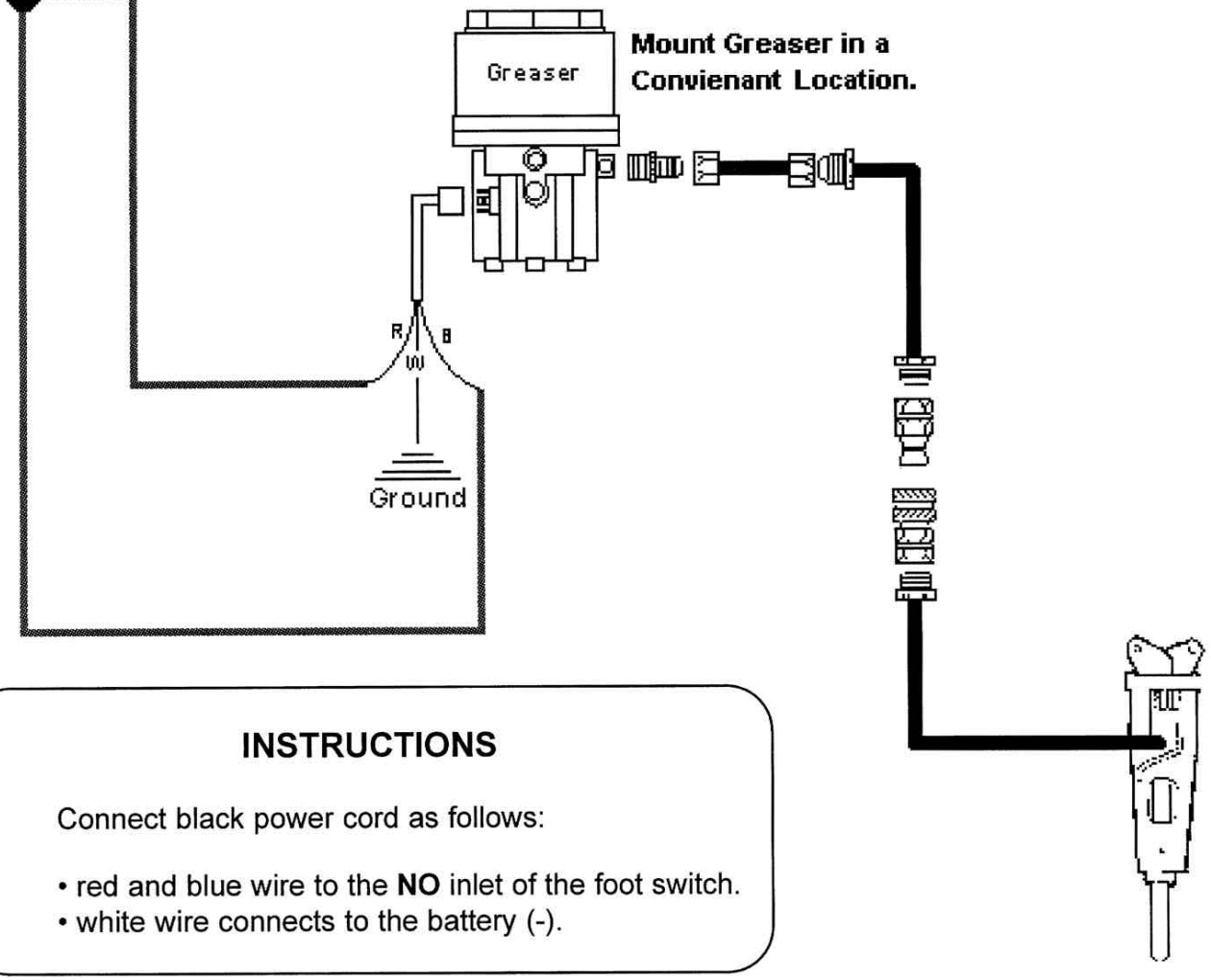
Item	Part Number	Ref #	Qty.	DESCRIPTION	DESCRIPTION
	82720L		**1**	**Lubricating Station**	
1	LCN247674		1	Reservoir	
2	LCN247676		1	Hose	
3	LCN247675		1	Stirring paddle	
4	LCN247679		1	Washer	
5			2	Bearing ring, part of kit LCN246434	
6			1	Bearing, part of kit LCN246434	
7	LCN246424		1	O-ring	
8	LCN246425		1	Intermediate plate	
9			1	Shim, part of kit LCN246434	
10			2	Snap ring, part of kit LCN246434	
11			1	Inner ring, part of kit LCN246434	
12	LCN246427		1	Eccentric cam	
13			3	Screw, part of kits LCN246435 & LCN246436	
14			3	Washer, part of kits LCN246435 & LCN246436	
15			1	O-ring, part of kits LCN246435 & LCN246436 & LCN246437	
16	LCN246426		1	Pump housing	
17	LCN246422		2	Closure plug	
18			1	Socket with cord, part of kit LCN246429	
19			1	Flat packing part of kits LCN246429, LCN246440, LCN246441, LCN246431	
20			4	Screw, part of kits LCN246440 & LCN246441	
21			1	Plug, part of kit LCN246440	
22	LCN246423		1	Sealing plug	
25	LCN5050		1	Grease fitting	
27			1	Woodruff key, part of kits LCN246435 & LCN246436	
28			1	Radial seal, part of kits LCN246435 & LCN246436	
29	LCN246435		1	12V DC motor kit	
29	LCN246436		1	24V DC motor kit	
30	LCN246421		1	Housing cover	
31			1	Hose not sold	
32			1	Plug, part of kit LCN246441	
33			1	Socke, part of kit LCN246431	
34			1	Check valve, part of kit LCN600268762	
35			1	Pump element, part of kit LCN600268762	
36			1	Gasket, part of kit LCN600268762	
37	LCN249567		1	Pressure relief assy	
38			1	Plug for motor, part of kits LCN246435 & LCN246436	
39	LCN242125		1	Grease cap	
40	LCN5045		1	Grease fitting	
41	LCN246428		1	Adapter for relief assy	
42	LCN247671		1	Lid	
43	LCN247664		1	Fixed paddle	
44	LCN247677		1	O-ring	
45	LCN247678		1	Adapter	
46	LCN219141382		1	Gasket, part of kit LCN600268762	

Part Number	Qty.	DESCRIPTION	Item
5045	1	Grease fitting	40
5050	1	Grease fitting	25
242125	1	Grease cap	39
246321	1	Pressure relief assembly	37
246420	1	Printed circuit bord	26
246421	1	Housing cover	30
246422	1	Closure plug	17
246423	1	Sealing plug	22
246424	2	O-ring	7
246425	1	Intermediate plate	8
246426	1	Pump housing	6
246427	1	Eccentric cam	12
246428	1	Adapter for relief assembly	41
246429		Power kord kit contains:	
	1	Socket with cord	18
	1	Flat packing	19
246431		Optional manual lube cord set contanins:	
	1	Flat packing	19
	1	Socket with cord	33
246434		Bearing and seal kit contains:	
	1	Washer	4
	2	Bearing ring	5
	1	Bearing	6
	1	Shim	9
	2	Snap ring	10
	1	Inner ring	11
246435		12V DC Motor kit contains:	
	3	Screw	13
	3	Washer	14
	3	O-ring	15
	1	Woodruff key	27
	1	Radial seal	28
	1	12V DC motor	29
	1	Plug for motor	38
246436		24V DC motor kit conatains:	
	3	Screw	13
	3	Washer	14
	3	O-ring	15
	1	Woodruff key	27
	1	Radial seal	28
	1	24V DC motor	29
	1	Plug for motor	38
246437		Housing seal kit contains:	
	3	O-ring	15
	1	Radial seal	28
246440		Power plug kit contains:	
	1	Flat packing	19
	4	Screws	20
	1	Plug	21
246441		Optional manual lube plug set contains:	
	1	Flat packing	19
	4	Screws	20
	1	Plug	32
247664	1	Fixed paddle	43
247671	1	Lid	42
247673	1	Reservoir	1
247675	1	Stirring paddle	3
247676	1	Hose	2
247677	1	O-ring	44
247678	1	Adapter	45
247679	1	Washer	4
219141382	1	O-ring	46
600268762		Pump element assembly contains:	
	1	Check valve	34
	1	Pump element	35
	1	Gasket	36





INSTRUCTIONS

Connect black power cord as follows:

- red and blue wire to the **NO** inlet of the foot switch.
- white wire connects to the battery (-).